ASSESSING CONTRACTORS' UNDERSTANDING OF STANDARD FORMS OF CONTRACT IN SOUTH AFRICAN CONSTRUCTION INDUSTRY.

By

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PREFACE

The research contained in this dissertation was completed by the candidate while based in the Discipline of Construction Studies, School of Engineering of the College of Agriculture, Engineering and Science, University of KwaZulu-Natal, Howard, South Africa.

The contents of this work have not been submitted in any form to another university and, except where the work of others is acknowledged in the text, the results reported are due to investigations by the candidate.

Signed: T. C Haupt (Supervisor)

Date: October 17, 2019

DECLARATION 1: PLAGIARISM

I, Ronelle Dulu, declare that:

(i) the research reported in this dissertation, except where otherwise indicated or acknowledged, is my original work;

(ii) this dissertation has not been submitted in full or in part for any degree or examination to any other university;

(iii) this dissertation does not contain other persons' data, pictures, graphs or other information, unless specifically acknowledged as being sourced from other persons;

(iv) this dissertation does not contain other persons' writing, unless specifically acknowledged as being sourced from other researchers. Where other written sources have been quoted, then:

a) their words have been re-written, but the general information attributed to them has been referenced;

b) where their exact words have been used, their writing has been placed inside quotation marks, and referenced;

(v) where I have used material for which publications followed, I have indicated in detail my role in the work;

(vi) this dissertation is primarily a collection of material, prepared by me, published as journal articles or presented as a poster and oral presentations at conferences. In some cases, additional material has been included;

(vii) this dissertation does not contain text, graphics or tables copied and pasted from the Internet, unless specifically acknowledged, and the source being detailed in the dissertation and in the References sections.

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Signed: Ronelle Dulu

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ABSTRACT

Standard forms of contract account for more than 99% of all contracts entered. In the South African Construction Industry, standard forms of contracts have been developed by independent professional bodies in order to provide some uniformity through standardization of the contractual terms and conditions. These contracts have been designed to specifically cater for the special circumstances relating to construction. Studies have shown that the lack of clarity in contract documents can lead to misunderstanding and disputes between parties.The complex design, structure and language usage of standard forms of construction contracts most commonly used in South Africa, result in the misunderstanding by building contractors of their rights, duties and responsibilities with negative impacts on their overall project performance and long- term business sustainability. This study attempts to assess the underlying causes of contractors poor understanding of the standard forms of contracts commonly used in the South African Construction Industry.

The primary objectives of this study were:

- To examine the effects of the lack of understanding of standard forms of contracts by contractors
- To determine if the complex design, structure and language usage of standard forms of contracts make them difficult for the contractor to understand.
- To determine if contractors know and understand their rights, duties and responsibilities.
- To determine whether training in the use of standard forms of contracts will improve the performance and management of projects.

A quantitative research method was adopted where a questionnaire with closed-ended questions was distributed to conveniently sampled construction contractors in the KwaZulu-Natal province of South Africa. A total of 134 questionnaires were administered and 67 were returned, translating to a response rate of 50%.

Findings from the study showed that respondents had experienced challenges with the understanding of standard forms of contract. Participants in the study reported high levels of agreement with the contributing factors to the lack of understanding of standard forms of contracts. Furthermore, the study confirmed that the complexity, structure and language use of the standard forms of contract make contractual agreements difficult to understand. Contractors perceived the contract forms as complex with too much legalese and ambiguity. The study revealed the difficulty of contractors to understand

and interpret the contents of the contract which might likely have resulted in the misunderstanding of their contractual rights and duties. Training in the use of standard forms of contracts allowed the contractor to improve performance and management of projects. It was evident that the attributes associated with training in construction provided contractors with the opportunity to understand their obligations.

This research focused on the construction industry and was limited to contractors in the KwaZulu-Natal province in South Africa. An extension of the study to other industries and contractors in other provinces is recommended. The possibility of obtaining accurate and thorough findings on the use of standard forms of contracts in South Africa will be increased, and comparative studies can be conducted.

Keywords: Standard forms of contract, textual complexity, legal jargon.

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CHAPTER 1: INTRODUCTION

1.1 Introduction

A contract is complex and can impose a significant cognitive load on the contracting parties making it difficult to understand (Eggleston, Posner and Zeckhauser, 2000). A heavy cognitive load can have negative effects on a task completion. Standard forms of contract probably account for more than 99% of all contracts entered (Slawson, 1971). Arguably, most contracting parties would have difficulty remembering the last time when they contracted other than by standard form. The practice of parties choosing the language and terms of their entire agreement is not much more than of historical importance (Ibid). The predominance of standard forms is the best evidence of their necessity and importance. A standard form of contract always uses the written form and its terms are prepared in advance. It is usually submitted in this form by one of the contracting parties to the other, typically the client to the other party usually a contractor. Model or standard forms of contract are intended to be used between parties of equal bargaining power and, in the course of the negotiations, are frequently amended in order to achieve a balance of, for example, economic interest between the contracting parties (Eggleston, Posner and Zeckhauser, 2000). But is this in practice the case?

Complete model or standard forms of contracts aim at total standardization. They purport to deal with all or most relevant terms of the contract between the parties. In normal cases only the names of the parties, the price and the specification of the goods or services to be rendered are left blank and have to be inserted. The parties, in the exercise of their discretion, are free to agree on modifications of the contract terms. This type of standardisation attempts to cover the rights and duties born of the contractual relationship, from formation at one end of the scale to such matters as discharge, rescission and remedies for breach of contract on the other. Because of standardization vast numbers of contracts are executed to the reasonable satisfaction of all parties concerned. People and organizations bargain, they write documents, and they avoid, suppress, and resolve disputes.

Further, because of standardization, it is likely that parties do not read the contract in its entirety or only read it after being bound by its terms (Slawason, 1971). In practice, however, many contracts are quite simple, and the terms are easy to understand (Eggleston, Posner and Zeckhauser, 2000).

1.2 Challenges faced by Contractors

In the South African Construction Industry, standard forms of contracts have been developed by independent professional bodies in order to provide some uniformity through standardization of the contractual terms and conditions. These contracts have been designed to specifically cater for the special circumstances relating to construction. According to Pietroforte (1997), standard forms of contract conventionalize the construction process through an assumed set of pre-established phases, responsibilities and roles. Therefore, the intent of model contracts is to create a predictable project environment and establish a common context of understanding and meaning among the contracting parties so that procedural certainty can be improved.

Studies have shown that the lack of clarity in contract documents can lead to misunderstanding between parties and even disputes (Cheung & Yiu, 2007; Harmon, 2003). If disputes are not properly managed, they may cause project delays, undermine team spirit, increase project costs, and, above all, damage continuing business relationships (Chan and Suen, 2005). One of the main causes that relate to disputes is the misinterpretation and misunderstanding of contract clauses and a preventative solution lies in the use of plain English (Chong and Zin, 2009). However, this solution continues to be elusive resulting in these difficulties persisting.

The rights and obligations of the contracting parties are communicated through the conditions of contract used in a construction project to ensure mutual and shared understanding of these by them. The contractual obligations and needs in any contract will be questionable and possibly contentious if there is a lack of understanding of the terms and interpretation of the provisions of the contract document. This misunderstanding could potentially lead to the non-fulfilment of contractual obligations. Broome & Hayes (1997) attribute interpretation errors mainly to contract clarity and legalese. It is essential to have a proper understanding of the contents of the contract document which ultimately leads to the enhancement of the contractual relationship between the parties and ensures the deliverance of the intended product. The complex design, structure and language usage of contract documentation in a construction contract often hinders the contract parties, especially the contractor to really understand the contractual obligations and needs.

1.3 Factors that inhibit the understanding of contract documentation

Clearly written communication aids the understanding of construction contracts resulting in less disputes arising (Rameezdeen and Rodrigo, 2013). The contract stipulates privileges and commitments as well as procedures to be followed by the respective contracting parties

(Ndekugri, et al. 2007). Conditions of contract need to be both readable and comprehensible for determining the contract's effectiveness in practice (Broome & Hayes 1997; Chong, et al., 2011). When the readability of a contract of a contract clause is high, its comprehension by different readers is also high (Rameezdeen and Rajapakse, 2007). Research, using surveys, shows that contract conditions used in construction lack clarity (Bunni, 2003; Chong & Zin 2010; and Rameezdeen and Rodrigo, 2013). To make matters worse standard forms of contract have become more complex over time (Rameezdeen and Rodrigo, 2013). The lack of clarity in traditional contract conditions is mainly attributable to long sentence length, poor layout and the presence of many redundant legal expression (Ibid).

Broom and Hayes (1997) note that standard forms of contract used in construction are plagued with many problems; lack of clarity is the most significant. By lack of clarity, the authors mean the design and layout of the whole contract document, as well as the use and order of words within a sentence (Ibid). Bubshait and Almohawis (1994) define clarity as the ease with which the language of the conditions can be understood.

Other problems included the use of legal jargon – sometimes referred to as legalese. The primary users of contract documents are contract administrators, project managers, quantity surveyors, architects and engineers who do not come from a legal background (Wright & Ferguson, 2009). The major issue is the difficulty of use of contract documents by non-legal professionals, who are in fact the main users (Ali & Wilkinson, 2010). As legal professionals are typically not employed on day-to-day contract administration of a construction project, there has been a plea to make these documents readable (Ibid)

1.4 Readability of a contract document

The readability formulae are the most commonly used techniques to access the clarity of a document. Readability has been defined as 'the ease of understanding and comprehension due to the style of the writing' (DuBay, 2004, p.3). DuBay (2004) identified four basic elements, which decide the ease of reading of a text. These are illustrated in Figure 1

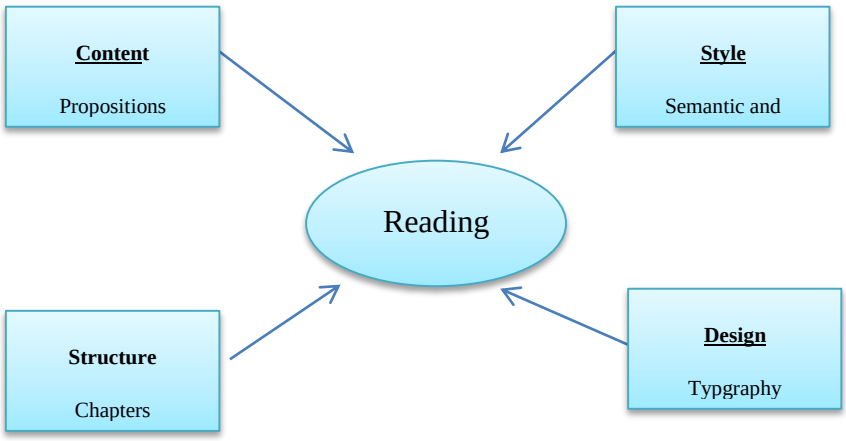

Figure 0.1 The four basic elements of reading ease

Source: Dubay, 2004, p.18

1.5 Consequences of poor understanding

The contract document is the main vehicle through which a pre-contract business deal is conveyed through to the implementation stage of a project. (Bubshait & Almohawis,1994). If there is a lack of comprehension and understanding of the contract document, this lack will lead to the failure of the project. According to Bresnen and Marshall (2000) lack of clarity and understanding can negatively affect the relationship between clients and contractors. In a contract document there are stipulated completion dates which have to be complied with. Failure to comply with these dates will likely result in penalties which will affect the financial status of the contractor or may even result in the liquidation of the contractor. There are also other requirements such as for example, those regarding security and payments which are critical. If contractors do not have a clear understanding of their obligations, this deficiency will impact negatively on their sustainability as contractors.

1.6 Understanding the contract Requirements.

The construction contract expresses the intent of both parties and their risk allocations decisions (McCallum, 2002). In order to understand the contract requirements, it is necessary to understand the content of the document. Contracts are formed and signed based on the fair basis where parties agree amicably to perform their obligations to satisfy each other requirements. Construction contracts try to be that document that will put both parties – the client (developer) and the contractor who has to build – on the same footing and on a level playing field. (Prof Tinus Maritz). However, in practice the challenge persists of lack of

understanding standard forms of contracts resulting in poor overall project performance, disputes and delays.

1.7 Problem Statement

The complex design, structure and language usage of the standard forms of construction contracts most commonly used in South Africa result in the lack of knowledge and understanding by building contractors of their rights, duties and responsibilities with negative impacts on their overall project performance and long- term business sustainability.

1.8 Hypotheses

The Hypotheses to be tested are:

- The lack of understanding of contract documents has a negative impact on the performance and sustainability of contractors in South Africa

- The complex design, structure and language usage of standard forms of contracts make them difficult to understand.

- Contractors do not know and understand their rights, duties and responsibilities in standard forms of contracts

- Training in the use of standard forms of contract will improve overall performance and management of construction projects.

1.9 Objectives

The objectives of the study are:

- The research study aims to examine the effects of the lack of understanding of standard forms of contracts by contractors.
- To determine if the complex design, structure and language usage of standard forms of contracts make them difficult for the contractor to understand.
- To determine if contractors know and understand their rights, duties and responsibilities
- To determine whether training in the use of standard forms of contracts will improve performance and management of projects.

1.10 Methodology

To achieve the objectives of the study, a mixed research approach will be used which will include both quantitative and qualitative methods such as focus groups and questionnaires.

The research methodology will consist of the following:

- Data Collection by means of questionnaires
- Analysis of data collected
- Literature review
- Validation of the findings from the data
- Recommendations

To achieve these objectives of the study, the research methodical approach is depicted in Figure 2.

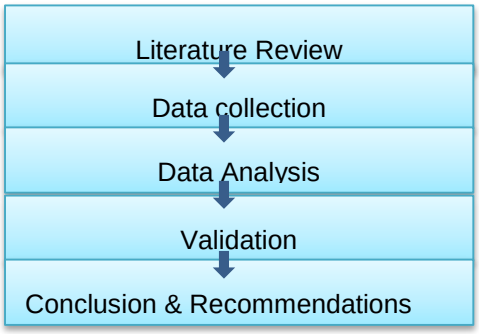

Figure 0.2. Research methodological approach

1.11 Limitations and Delimitations

The study will be subject to the following limitations:

- The study is confined to Kwa Zulu- Natal Province
- The sample is limited to building contractors in the Durban and surrounding areas.
- The study will be completed within 24 months, namely October 2107 to October 2017

1.12 Assumptions

The study is subject to the following assumptions:

- It is assumed that all participants have had experience with working with standard forms of contract and therefore have some knowledge of the challenges of using them
- It is assumed that the participants of the study will co-operate and provide meaningful information with respect to the research topic.
- It is assumed that the participants selected will respond honestly and accurately to the questionnaires.

1.13 Ethical considerations

To comply with international ethical standards, no reference to actual name of companies or individuals will be recorded. In doing so, no individual or company can be linked to a statement, thus assuring anonymity. The participants will have the opportunity at any time to withdraw from the study. The research does not aim or advertise for an individual, company or associate organization that has participated in the study. The University of Kwa-Zulu Natal will approve all research instruments that will be used via Ethical Clearance Committee. The quality will be assured through the correctness and completeness of instruments used i.e. Questionnaire competence, the accuracy in its statistical calculation efficiency of data analysis and its capturing.

1.14 Significance of the Study

The study is significant in that the findings can be used to improve the sustainability of contractors and eliminate unnecessary disputes and the associated delays and disruptions on construction projects.

The findings will further enable the construction industry stakeholders to have a deeper understanding of the problems that contractors experience regarding the understanding and interpretation of standard forms of contract documents. The identification of these problems will enable a strategy to be developed that will improve the understanding of contracts and hereby improve the overall performance of construction projects, avoid failure of projects and break in business relations.

1.15. Study Outline

Chapter 1: Introduction – The introductory chapter introduces the research, the background study, problem statement, the hypothesis to be studied, research objectives, the rationale of the study, research methodology, all limitations, assumptions, ethical considerations and the overall significance of the study. Lastly it will state the anticipated outcomes to be achieved.

Chapter 2: Literature review – This chapter will be an overall view on the research and publications on the study. Firstly, the lack of understanding of standard forms of contract documents in South Africa will be reviewed and the effects that it has on the sustainability of contractors.

Chapter 3: Research Methodology – This chapter will discuss the research methods that will be used to test the hypothesis. The methodology will explain what research methods will be followed. Thereafter the research methodology process will be explained, with reference to the sample selection through to the sampling process. Chapter 3 will also illustrate the manner in which data will be analysed and presented in order to assess the data collected. Information on the validity and reliability of the data collected will be included.

Chapter 4: Analysis of data and discussion of findings – The findings from the analysis of the data collected and captured will be presented in this chapter. The analysis will be executed using the Statistical Package for Social Sciences (SPSS Latest Version). All data will be analysed to identify the general views of the respondents. The findings will be discussed in the context of the reviewed literature and previous studies.

Chapter 5: Conclusion and recommendation – Chapter 5 is the final chapter which presents the conclusion of the research and the extrapolated research findings. Finally the recommendations will be formulated for implementation and for further research, will be included.

1.16 Chapter Summary

This chapter introduced the use of standard forms of contracts used by contractors in South Africa. Research has shown that despite using standard forms of contracts, contractors still have trouble in understanding their rights and obligations due to the complexity and readability of these contracts. The chapter highlights the problem statement, hypotheses, objectives, research methodology, assumptions and limitations, ethical considerations and significance of the study. The next chapter presents a comprehensive literature review.

CHAPTER 2: Literature Review

2.1 What is a contract?

The construction industry everywhere faces problems and challenges. However, in the developing countries, these difficulties and challenges are present alongside a general situation of socio-economic stress, chronic resource shortages, institutional weaknesses and a general inability to deal with the key issues. There is also evidence that the problems have become greater in extent and severity in recent years. One of the key challenges faced by the various stakeholders that are involved in a construction project are the issues surrounding the Standard Forms of Contract that govern the contract. (Ofori, 1993).

According to Roman Law, an obilgato (obligation) is defined as a legal bond by which a person or party is compelled to deliver something, and this is associated with commitment and expectation. Fouche, (1999) outlines that in terms of expectation, in contractual terms this expectation is often monetary based on services provided. When expectations of monetary delivery and service delivery are introduced, a clear contract agreement must be agreed upon between both parties.

Globalisation is a trend which has occupied the headlines of major popular publications for several decades. There are sharply different arguments on the merits and otherwise of the process of globalisation from the perspective of the developing countries. One of the short-term aims of the CIB Task Group 29 (TG29) is to study the implications of globalisation for the construction industries of developing countries. As far as these industries are concerned, globalisation is an inescapable fact. This is because many of the construction projects which the nations require for their socio-economic development are beyond the capability of their industries to undertake, owing to the size, novelty and complexity of those projects (Drewer, 1980).

2.2 The Development and use of standard form of contracts in the construction industry

This chapter presents a literature study of the standard forms of contract used in the construction industry in South Africa and relates to the established research conducted in the subject as well as a literature analysis of the challenges faced by contractors in the understanding of the standard forms of contracts that are commonly used in the construction industry in South Africa.

A construction contract is comprehensively a “contract or an agreement under which one party undertakes to perform a service for another party. (Loots & Charrett, 2009:23).

The two main construction related contractual obligations of the Contractor and Employer respectively, namely The Contractor's obligation to complete the Works (within the Time for Completion); The Employer's obligation to co-operate with and not to prevent the Contractor from completing the Works (within the Time for Completion). While certain contractual outcomes stay relatively fixed over time, the interpretation of construction law is changing on a worldwide scale, especially in terms of case law. (Du Toit, 2009).

Procurement in the construction industry falls under the South African Institution of Civil Engineering which, over several decades have drawn up several editions of The General conditions of Contract for all building and construction projects. Construction stakeholders. According to South African Law, a contract is defined as a legally binding or valid agreement between two parties, which stipulates the privileges, terms and conditions by the contracting parties. (Ndekugri et al, 2007). In the construction industry, the forms of traditional contract are subjected to amendments to allow for relevance, practicality and variations based on implied terms of agreement as annexures to a traditional contract.

The standard forms of contract make it clear using express terms that the contractor is obliged to perform various functions. Whilst the FDIC and NEC have been used historically in the construction industry worldwide, these documents do not allow for variations of changes that commonly occur in a construction related project. Construction law contracts are not to be interpreted differently from any other contracts, but the fact remains that there are certain aspects that distinguish construction agreements from other agreements and hence the consequence that most disputed construction agreements end up in arbitration and not in court and also the fact that construction agreements and the interpretation thereof have become a specialized field over the last century.

Even as early as 1939 an English civil engineer and barrister E.J. Rimmer distinguished civil engineering contracts from other contracts by asserting that "The subject matter of an engineering contract is generally such as necessitates that the documents of which the contract is composed must make provision for contingencies and events of a special nature, and it is chiefly in this respect that it has peculiarities not to be found in other forms of contract, and is often inevitably of considerable length" (as referred to by Seppala. R (2005); Canst. L.1. (2007)

arguing the relevance of general law of contract principles in the context of engineering and construction contracts.

The fundamental issue of all procurement systems in construction is the development of framework which clearly establishes the roles, responsibilities and relationships of parties involved in a project. Construction procurement is a key factor which contributes to achieve the overall strategic goals of the client, thus to the project success. The selection process of procurement systems has become increasingly complex, mainly as a result of the continuing proliferation of alternative methods for procuring building projects, their ever-increasing technical complexity and clients' continuing desire for speedy commencement and completion, all of which has led to the demand for more sophisticated methods of selection being devised (Masterman and Gameson, 1997).

In addition, due to the fragmented and complex nature of construction projects, there is no one way of dealing with procurement, as often they are different in scale, complexity and nature. In dealing which procurement systems, there is a need to take into consideration various factors from the projects' internal and external environment in which the project and the industry operate.

This study addresses the challenges faced by contractors in the understanding of standard construction contracts, particularly in the South African context. In this The Literature Review the constructs of challenges are discussed by first looking at the advantages and disadvantages of the:

1. The New Engineering Contract (NEC)
2. The Federation Internationale des Ingenieurs-Conseils (FDIC)
3. The General Conditions of Contract (GCC)
4. The Joint Building Contracts Committee (JBCC)

Firstly, the development, definition and the usage of standard construction contracts are discussed in a worldwide perspective, including the problems associated with traditional contract forms globally. From a worldwide perspective, the literature review will explain the South African and Dutch perspective. Lastly, a literature synthesis concludes the expected answers on the research sub-questions based on the literature study findings. In addition, it will identify the shortcomings of the available literature as the motivation for this research.

This literature review is divided into five Subsections

a. This first subsection defines a standard construction contract and its implication on a construction project.
b. The second subsection outlines the design and background of the FDIC, NEC, GCC, JBCC documents with relation to contractors
c. The third subsection will review the knowledge and understanding of the FDIC, NEC, GCC and JBCC on a worldwide and South African context.
d. The fourth subsection will review the overall performance of the FDIC, NEC, GCC and JBCC documents with relation to the current usability and long-term sustainability
e. The fifth subsection will review the challenges that have already been established in the canon with respect to worldwide and South African usage of the FDIC, NEC, GCC, and JBCC documents

2.3 Subsection A. The standard construction contract and its implications on a construction project.

The development and improvement of standard forms of agreement dates to the nineteenth century. By the twentieth century, it was recognised by the contractors and legal agencies that a standard form of contract was necessary to avoid disputes and to regulate the duties and responsibilities of each party within a construction project. Prior to the usage of contracts, the use of promises and agreements governed most exchange of services or goods. (Fenn, 2011)
A promise was often verbal but the introduction of civil law in the nineteenth century construction industry took the doctrine of consideration of promise by reason into a legally binding situation that held parties responsible for their promises. (Comish, 2012b)

An agreement however constitutes a formal relationship between parties, for example a contractor and a sub-contractor, and the agreement became a legally binding statute. Fenn, (2011) discusses that the modern and common practice currently amongst all legal systems globally now considers and agreement to be a binding contract, thus necessitating the use of a standardised form of contracts that construction industry can utilise.

The standard contract form defines the general conditions of the contract to which the parties must conform to. General conditions of contract are worldwide standardized into many different contract forms, such as the GCC, JBCC, FIDIC, NEC

The general conditions of contract define the relationships between the parties according to its rights and responsibilities and furthermore spell out the general project rules and commercial terms (Bubshait & Almohawis, 1994).

The wide use of local and international standard construction contracts reflects a recognition of the advantages. Two of the main advantages are the ongoing possibility for improvement and the emergence of familiarity. General conditions of contract play a large role in the successes or failures of a construction project in terms of cost, time, quality, and the satisfaction of the contracting parties. The general conditions therefore require thorough review by both the employer and the contractor as a source of project risk that needs to be assessed.

Several aspects need to be considered when evaluating the effect of the general conditions of a standard construction contract on the project performance. The most important aspects are: the anticipation of potential disagreement in the relationship between the contracting parties, the use of language, fairness and the promotion of the achievement of project success in terms of cost, time, quality and safety (Bubshait & Almohawis, 1994).

Bubshait & Almohawis (1994) proposed that these aspects be broken down in a checklist of 11 attributes that measure the effect on project performance or on the contrary, in a lacking situation, measure the contractual risks of a standard form of contract in that the contract must be focussed on a fair allocation and effective management of risks, stimulation of good collaboration, prevention of the four factors of contract incompleteness, reduction of the opportunity for opportunistic behaviour and the stimulation of a team effort by creating shared objectives to prevent affective conflicts. An important tool to create a project environment that is focussed on these factors is the standard construction contract (Bubshait & Almohawis, 1994). Construction projects are often subject to disputes and non-optimal project performances. Deficiencies of traditional standard construction contracts. There is much academic literature regarding traditional contract forms and its deficiencies. These deficiencies in the FDIC, NEC, GCC and JBCC are subsequently explained.

Another attribute of traditional standard construction contract is the use of precise legal language. However, this has created unquestionable content within a first draft, as revisions were incorporated the language became increasingly complicated and ambiguous. Consequently, the problems associated with the mainly transactional attributes and the difficult legal drafting style of traditional standard construction contracts.

Over the years the construction industry has developed adversarial relationships with an associated lack of co-operation, ineffective communication, strive for the maximization of self-interest and lack of trust (Chan, Chan, Chiang, Tang, Chan & Ho, 2004).

These sets of formalised procurement procedures from the basis for building contracts worldwide. In construction industries worldwide, procurement forms the basis of need for all contractual obligations. In addition, due to the fragmented and complex nature of construction projects, there is no one way of dealing with procurement, as often they are different in scale, complexity and nature. In dealing which procurement systems, there is a need to take into consideration various factors from the projects' internal and external environment in which the project and the industry operate. To establish procurement selection procedures, clients should formalize a set of suitable selection criteria based on their specific needs, objectives, project requirements and external environments. (Shiyamini et al, 2005).

2.3 Subsection B. The design and background of Contract Documents:

1. FDIC Document

The Fédération Internationale des Ingénieurs-Conseils ("FIDIC") organisation was founded in 1913 by France, Belgium and Switzerland. The UK did not join until 1949. The first edition of the Conditions of Contract (International) for Works of Civil Engineering Construction was published in August 1957 having been prepared on behalf of FIDIC and the Fédération Internationale des Bâtiment et des Travaux Publics (Glover, 2007).

FIDIC Contracts have been developed over 50 years as the international standard for the consulting industry. They are recognised and used globally in many jurisdictions, on all types of projects.

FIDIC has four main options which are classified by colour; Red is a re-measurable contract; but often amended to be a fixed price lump sum, yellow the design and build option, green is short form and FIDIC also offers a turnkey contract option, known as the silver book. The silver book of the FDIC is the current version that is used by some countries. The silver book is ideal if handing a highly complex project over to a client which has several interfaces being carried out by different companies and require expert install and commissioning.

The first version of the FDIC was the first edition of the "Yellow Book" being produced in 1963 by FIDIC for mechanical and electrical works. This had an emphasis on testing and

commissioning and was more suitable for the manufacture and installation of plant. The second edition was published in 1980.

Both the Red and Yellow Books were revised by FIDIC and new editions published in 1987. A key feature of the Red Book was the introduction of an express term which required the engineer to act without bias when giving a decision or taking any action which might affect the rights and obligations of the parties, whereas the previous editions had assumed this implicitly. Although the new FDIC forms in the Silver Book were widely accepted for use worldwide, the FDIC 4th edition ("The Old Red Book") remains the contract of choice throughout much of the Middle East, particularly the UAE.

Consequently, the need to submit matters to the engineer for his "Decision" prior to an ability to pursue a dispute, was eliminated. In its place an Independent Dispute Adjudication Board was introduced consisting of either one or three members appointed jointly by the employer and the contractor at the commencement of the Contract, with the cost being shared by the parties. The World Bank recommended an amendment to the Red Book.

A Supplement to the Red and Yellow Books was published in November 1996 which provided all users with the ability to incorporate alternative arrangements comprising an option for a Dispute Adjudication Board to go with modelled terms of appointment and procedural rules, and an option for payment on a lump sum basis rather than by reference to bills of quantities. In 1994 FDIC established a task force to update both the Red and the Yellow Books in the light of developments in the international construction industry, including the development of the Orange Book. The key considerations included:

(i) The role of the engineer and, in particular, the requirement to act impartially in the circumstances of being employed and paid by the employer;
(ii) The desirability for the standardisation within the FIDIC forms;
(iii) The simplification of the FIDIC forms in light of the fact that the FIDIC conditions were issued in English but in very many instances were being utilised by those whose language background was other than in English; and
(iv) That the new books would be suitable for use in both common law and civil law jurisdictions.

The new FDIC form has 20 clauses, many of which include of significance, financial clauses; material changes concerns, position of the engineer in specific projects and specifics on the Contractors general obligations. Payment times, termination of contract and the handling of liabilities also form part of the fifty key clauses of the FDIC.

In the 1999 edition of the FDIC, the contract clearly outlined the role of the engineer and further changed to give the employer the right to make changes in the construction project with the strong proviso that the contractors and engineers must be given due notice to inform them of these changes. According to Appuhn and Eggink (2006), this worked to the disadvantage of the engineer and contractor as it upset the balance of risk and power. The key ingredient for the FDIC success is that industry standard lies in its balanced approach to the roles and responsibilities of the main parties, as well as the allocation and management of risk.

All FDIC contracts therefore contain guidance on the preparation of Particular Conditions and provide examples of the areas where special provisions may be required for a specific project. Experience in different countries and with different kinds of client, suggests that changing or upsetting the balance of risk-sharing in FDIC contracts typically results in higher tender prices; delays to completion; additional time and cost claims; and, in the worst cases, major protracted disputes leading to arbitration, and sometimes to contract termination. It evolved that the FDIC did not present a flexibility that was needed in a new Construction environment with developing countries procuring more built environment work as globalisation became a widespread phenomenon. FDIC contracts provide guidance on project specific sub-clauses where Particular Conditions might be used.

Examples of non-project specific clauses (which should not be modified) include the following:

1. The role and authority of the Engineer (where applicable, otherwise the Employer's Representative):

- Oversight and/or inspection of the Works
- Issues of Certificates
- Valuation of Variations
- Assessment, response to and determination of time/money claims
- Monitoring of the Contractor's programme

If the Engineer became unduly constrained so that he could not exercise independent professional judgement, then problems with successful contract management, dispute avoidance and timely completion was in jeopardy. The FDIC, although comprehensive allowed for liability but this fell into a large culpability on the role of the Engineer. Some liabilities include:

2. Liability for errors in the Drawings/Technical Specifications or Employer's Requirements
3. Liability for proving access to and on the Site.
4. Liability for obtaining permits and approvals.
5. Liability for unforeseeable physical conditions.
6. Delays caused by authorities.
7. Defects liability, including latent defects.
8. Procedures for dispute settlement/resolution

2. NEC Document

The NEC is a modern contract which takes a much more collaborative approach to construction, project management and risk. It focuses on plain English and aims to alleviate the use of legal jargon and use words which have a more natural meaning. It also avoids ambiguous terms such as 'fair' and 'reasonable' in favour of more measurable and scientific methods.

The pivotal role played in the NEC Contract is by the Project Manager, who is appointed by the employer. In the newest version of the NEC Contract which, after revisions is currently referred to as the NEC/ ECC (Engineering and Construction Contract) Contract Gerard, (2005) there is provision of a multi-party arrangement amongst the Project manager, contractors and subcontractors. The benefits of this is that a core group is appointed to the project, and not all suppliers have to be engaged in every aspect of the project. This increases core performance indicators and decreases the risk of a splintered large group that intends to create a successful project. Separate functions of employer's designer and contractor's designer are assumed but not mentioned in the contract (van der Berg and Wium, 2015).

The NEC/ECC also has an early warning algorithm that operates on the premise of prior research and usage, thereby identifying red flag areas before they arise. The Project Manager then can look out for specific areas that may result in issues that will compromise the project. The Early warning system is probably the main advantage of the NEC/ECC as it serves to set

up red flags earlier than later in project development, thus minimising cost and risk to the Employer.

The NEC assigns responsibilities and roles to:

- The Employer
- The Project Manager
- The Supervisor
- The Contractor
- Subcontractors

The NEC is a suite of contracts which can be used for the procurement of works, goods and services across all sectors, including private and public, building and infrastructure, plant as well as equipment. It also facilitates all stages of the project lifecycle, from the initial planning, design and project management to construction as well as maintenance and facilities management.

Figure 2.1. NEC Structure

An overview of each form of contract within the NEC suite of contracts:

- Engineering and Construction Short Contract (ECSC) – This contract is a simpler version of the ECC contract and is most suitable for projects that are considered "low risk".
- Engineering and Construction Short Subcontract (ECSS) – Enables the contractor to sub-let a contract to a subcontractor on projects that are low risk.
- Engineering and Construction Contract (ECC) – This type of contract is suitable for construction based contracts which are between the contractor and employer. It could also be used by any sector of the industry.
- Engineering and Construction Subcontract Contract (ECS) – This contract is similar to the ECC contract but makes allowance for the contractor to sub-let the project to a subcontractor.
- Term Service Contract (TSC) – This type of contract are for projects that are maintenance or operational based. It is not generally used for the construction of new works.
- Term Services Short Contract (TSSC) - This type of contract is an abbreviated version of the TSC however are for low risk projects.
- Professional Services Contract (PSC) – This contract is for the provision of services rather than any physical construction work. Designers are the most common party that fits into this type of contract agreements.
- Professional Services Short Contract (PSSC) - This type of contract is an abbreviated version of the PSC however are for low risk projects.
- Supply Contract (SC) – This contract is for a supplier that supplies goods to a project and has extra requirements contractually during the procurement and manufacture period.
- Short Supply Contract (SSC) – This contract is a supply contract for big items, potentially being for items that are less complex on a project.

The Engineering and Construction Contract was developed to offer an all-in-one document appropriate for traditional procurement, design and build, or management contracts, suited to most types of civil engineering and building work, from large scale projects to minor works. The flexibility of the contract allows for all traditional disciplines to be included, whether the contractor has design responsibility or not and it provides numerous tender options i.e. lump

sum, target, cost reimbursable and management contracts. The contract has been designed with clarity and simplicity in mind, so it is written in ordinary language with relatively short clauses. This allows it to be exportable and understandable, which therefore leads to fewer disputes.

Structurally, NEC3 is made up of core conditions, six main options (reflecting the price/procurement strategy, analysed further in the second of this two-part series) and various secondary options ("W," "X" and "Y" clauses). The parties can tailor their contract to fit a project by selecting which of the optional clauses they would like to incorporate as its own unique terminology though; a variation under other contracts. Optional clauses include dispute resolution procedures, provision for bonds or parent company guarantees, limitations on liability and advance payment.

The NEC's biggest emphasis is on Time and Programme. A programme must be accepted at the start of the project, and until a programme is accepted, 25% of the work carried out to date can be deducted. NEC3 envisages the project as a collaborative process, with an emphasis on contract administration. The parties are obliged to "act in a spirit of mutual trust and co-operation", an obligation which is central to the philosophy and concept of NEC3. (Riddeck et al, 2013).

In comparison, to FIDIC, NEC does not limit variations, making it more of a flexible form of contract. This does not translate to a form of contract that is markedly flexible, especially when dealing with issues such as the vastly different entities that enter into a construction contract. Although more successful than the FIDIC, Beasaio (2012) and Thompson et al, (2000) outline that the NEC aims to resolve the root cause of disputes by suggesting a more realistic approach that stimulates co-operation between all parties. Although,like the FIDIC, in that both contracts are well designed, the NEC has been recognised as a superior document, where the Red Book of the FIDIC has moved towards the NEC approach (Ndekugria et al, 2007)

Riddeck et al (2013) also found that:
As with FIDIC, the NEC has several options which are alphabetical. A quick overview of the options are as follows:

(i) Option A Priced activity schedule – activities cannot be paid for under the contract until they are 100% completed.
(ii) Option B - Bills of Quantities - this is ideal when the likelihood of change to the quantities is relatively high. As all the rates are already priced and can be

used going forward, however there is no incentive for the Contractor to keep costs down.

(iii) Option C & D - Priced Activity Schedule and Bills of Quantities respectively both with Target Cost

The terminology is simple, collaborative and the program is key to the functions of the NEC Contract mechanisms. It is considered a more modern contract and has a higher awareness of the current terminology of risk and liability.

NEC3 is often viewed with suspicion by those who are not familiar with how it works, even though the form is now in its third edition. It is, intentionally, a very different contract, in structure, language and terminology, from more traditional forms such as FDIC. It shies away from the traditional language of construction contracts, such as "extensions of time" or "variations," and even avoids the use of mandatory wording such as "shall" – instead, verbs are used in the present tense – this is very advantageous to clients and takes a great deal of financial risk off them.

The process of selecting a contract for a building project is based on a standardised form of contract by the CIDB. In the South African context, standard form of contracts have been developed by independent professional bodies which, according to Haupt & Dulu (2016) are a means of providing uniformity.

Harinarain (2012) highlights that the traditional methods of procurement are based on:

- A firm bill of quantities
- Bills of Approximate quantities
- Drawings and specifications
- Schedule of rates
- Cost reimbursement

When inappropriate selections are made, disputes result which arise from issues such as doubt, questioning or incompatibility of actual behaviour versus expectations (Jaffar et al, 2011)
Haupt et al (2016) further state that lack of clarity in terms of language serves to cause project delays, undermine team spirit increase project costs and damage business relationships.

Legalese language leads to lack of clarity which contributes to poor usability of the contract and further adds to conflict situations.

3. GCC Document:

The FDIC, albeit an internationally recognised document appeared to a South African context as lacking. The Construction Industry Development Board (CIDB), a national body established by an Act of Parliament (Act 38 of 2000) saw need to develop a new form of contract that was more flexible, specific to the context of a developing South Africa and not as outdated.

The role of the CIDB develops the industry for the improved delivery of infrastructure to the South African public. It works with all stakeholders for the sustainable growth of construction enterprises and the best practice of employers, contractors and the professions. The CIDB identifies best practice and sets national standards. It promotes common and ethical standards for construction delivery and contracts.

South African construction projects began use of the General Conditions of Contract, which after many revisions, was adopted as the GCC2010 which was finally released at the end of May 2010. One of the procurement documents endorsed by the CIDB is the General Conditions of Contract for Construction Works published by the South African Institution of Civil Engineering (SAICE). The first edition of the GCC was published in 2004 (GCC 2004) and a revised second edition was published in 2010 (GCC 2010). The GCC2004 is widely used by public sector for the execution of civil engineering projects which is in line with the directive issued by the CIDB.

Several interested parties have contributed to the drafting of the contract (contractors, employers, engineers and a language expert). Even the NEC suite of contracts, which is a clear attempt to break the shackles of legalistic conditions of contract, involved legally qualified experts in its drafting. Attempts to prevent legalese jargon and simplify the language in the document to make it user friendly to both Project Managers and Contractors alike were mandatory and utilised in the final drafting of the document.

This new revision had a significant impact on improving the clarity of the roles of the Employer and the Contractor. Ultimately, the success of any construction project is dependent on the attitudes of the participants. (Klingenburg, 2014). The GCC 2010 attempted to facilitate a better attitude by the attention to risk minimisation. The Oxford English Dictionary (2013 p 990)

defines risk as: "(Exposure to) the possibility of loss, injury, or other adverse or unwelcome circumstance; a chance or situation involving such a possibility."

According to Flanagan and Norman (2000), construction projects have an abundance of risk which contractors deal with and owners pay for. The minimisation of risk at the outset by the use of a contractual document is key to the success of a project.

In June 2004 the Construction Industry Development Board first published the Standard for Uniformity in Construction Procurement in the Government Gazette (CIDB, 2010). The GCC 2004 was deemed to be in line with the standard and was included as one of the four standard procurement document suites that comply with the requirements of the standard. After six years of use in the industry the GCC 2004 was revised in 2010 to better comply with the standard and to address shortcomings experienced with the GCC 2004.

The construction industry is constantly evolving with new technologies entering the market and alternative methods of construction being developed. With these developments, the related parties become more specialised in their respective fields and have less exposure to practices.

A study by Hymes (2011) indicated that general conditions of contract led to construction claims and disputes as frequently as erroneous drawings, deficient technical specification and disputes related to jurisdiction matters. The GCC document requires the services of the engineer to oversee a contract. Should disputes arise, the onus is on the Engineer to work on amending the contract and allowing for a smoother process between client and contractor. While this appears theoretically sound, disputes do arise as Kilngenberg (2014) outlines that it is often a biased contract, that trends towards the Client rather than the contractor in the event of disputes. This creates a space of mistrust which could easily have been avoided should a more inclusive and balanced document be in place.

According to the Basic Guide for Construction Projects issued by CIDB in February 2004, the distribution of the GCC suggests that it was used in a variety of project types. However, it was not largely used in the Residential Building Sector. Only in this Building sector was it not used as the preferred procurement document. The JBCC has been specifically set up for use in the building sector.

The GCC has a growing trend of being the preferred procurement document for project, excluding building projects. The JBCC also has an increasing preference, although this is mainly due to the fact that the JBCC is specifically used for building projects.

4. JBCC Document

Building contracts in South Africa historically used the British system. The latter half of the eighteen century saw the emergence of builders who worked in a speculative capacity in projects in the United Kingdom. The evolution of the speculative builder lead to the use of the term contractor to define all service providers in a construction project. Although this was confined to usage in the United Kingdom, South Africa, which follows British Law systems adopted these law systems in terms of contract for building projects.

The development of the building industry in South Africa resulted in the need for amendments to the British version. A joint Study Committee comprising of representatives from The Institute of Architects, the Chapter of Quantity Surveyors and the Building Industries Federation South Africa (BIFSA). BIFSA was later re-branded as the Master Builders Association South Africa. An intensive and re-drafting of the documents resulted and in 1988, the new documents were designated as the Joint Building Contracts Committee Series 2000. The Joint Building Contracts Committee was registered as a non-profit company in 1994. According to Finsen (2005) in the commentary of the JBCC Agreements, acceptance by the state resulted in a delay in having this joint agreement being mandated. Further editions were published in 2000, 2003 and 2005.

In addition to the documents being primarily for the South African Building environment, they were also "internationalised." (Finsen, 2005). For example, the term Value –Added Tax or VAT, which is a South African term of usage was changed to "tax" which is more internationally used. The JBCC document can be used in other countries and retains validity in terms and references. The Department of Public Works, South Africa has to date adopted a policy to use the JBCC documents as standard.

The JBCC Series 2000 is a collection of documents that comprise the Principal Building Agreement and the Minor Works Agreement. These documents define the legal rights and obligations of the employer and contractor. The JBCC document seeks to maximise a relationship between client and contractor (Othman & Harinarain, 2011). This fluidity of relationship should be based on the constructs of a shared language that all parties understand, minimises jargon and legalese, and has an overarching goal of knowledge and understanding.

This type of contract translates to eventual sustainability in client-contractor relationship, ensuring not only a smooth flow in the contract at hand, but in further contracts to come. Markus & Mitkus (2013) draw on communication theory to highlight the importance of relationship. The authors state that "unfair behaviour of construction participants and psychological defence mechanisms" that are part of human nature result in the greatest number of disputes in constructions. Jaffar et al, (2011) further underpins this construct in stating that although there may arise problems due to contractual constructability, readability and the poor understanding of instructions from the engineer or architect, the authors highlight that conflict arises from the behavioural problems such as poor communication among the project team, that includes a team that may be multicultural, with linguistic differences and cultural variants.

In the South African construction industry, there is a growing necessity to enable contractors to understand and develop their risk management strategy as well as the significance to overcome the limitation and the scant attention paid to this topic in construction literature, particularly in the South African context with the Joint Building Contracts Committee (JBCC) Document. The document has to maximise usability and minimise risk in its usage, it being the principle document used in the South African context.

Taking this into account, Othman & Harinarain (2009) define risk as "the exposure to the possibility of economic or financial loss or gain, physical danger or injury, or delay as a consequence of the uncertainty associated with pursuing a particular course of action." Harinarain & Othman (2011) further posit that the construction industry is subject to more risk than other industries. Smith (1998) outline that the awareness of contractors towards the risks that are associated with contract documentation is the key decider as to the eventual success or failure of a construction project. Poor knowledge of the Forms of Contract leads to financial drain on the project and a win-lose environment where both parties are unequally prone to loss. (Van den Berg, 2015).

A SWOT analysis of the JBCC Document conducted by Othman & Harinarain (2011) identified internal and external risks that result in failure of construction projects. Internal Risks are identified as those that emerge from and are in the control of the team members. External risks involve those that are a result of external factors and are out of the control of the contractors. This study looks at the JBCC Document as it seeks to minimise the internal locus of control by addressing the key factors such as design and understandability, as well as long term sustainability of the document.

In the study conducted by Othman & Harinarain (2011), interviews of contractors resulted in findings that contract instructions is one of the highest indicators that will result in easier dispute resolution (scoring 100% on the risk identification criteria). Flanagan & Norman (1993) reiterate this, in stating that it is the contractors' perceptions of the risk involved that will result in a greater success or failure of a particular project. The highest sources to contractors that propose risk and failure of projects are Clients, Sub-contractors and Quantity surveyors respectively (Othman & Harinarain (2009). These agents' overall knowledge and means of understanding the JBCC document is thus a critical area for the proposed evaluation for the overall achievement of best practice standards within the construction industry both in South Africa and on the global platform.

2.4 Chapter Summary

This chapter focused on a review of literature on forms on contract in the construction industry. This section highlighted the fact that conclusion, the success or failure of a construction project is based on both external uncontrollable factors as well as internal factors that can be controlled by the parties that enter into a business contract. The controllability of factors would hinge strongly on a well-designed and well understood standard form of contract for all parties.
The next chapter presents the research methodology selected for the study.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents details of the research methodology and research design adopted in this study. Research strategies adopted for obtaining and analysing the data for this study are justified. This section describes the specific research approach, research design, research instrument, sampling techniques and validity and reliability of the research instrument and procedure for data collection and analysis.

3.2 Research Design

The research design is a plan developed for the collection and analysis of data obtained and enables the researcher to achieve the formulated objectives (Bryman, 2004). It is a framework developed by the researcher for gathering and analysing data (Flick, 2011). Leedy and Ormrod (2010) opined that for data to be effectively organised, four cardinal questions regarding research data should be answered;

- "What data is needed?"
- "Where is the data located?"
- "How will the data be obtained?"
- "How will the data be interpreted?"

Quantitative and qualitative research approaches are the two primary types of research designs. The research design can also be structured by combining both approaches to develop a mixed research approach or triangulation.

3.2.1 Qualitative Research

Qualitative research outlines social research where the analyst is dependent on the use of text data as opposed to numerical data. The qualitative approach is used by researchers in order to explore the perspectives, behaviour, feeling and experiences of people and highlight the understanding of these findings (Bryman, 2012). The qualitative research approach is used where the researcher wants to investigate and understand the meanings that individuals or groups assign a certain social or human issue (Hennink, Hutter and Bailey, 2011). Qualitative research strategies include case studies, grounded theory, ethnography, content analysis and phenomenology (Leedy and Ormrod, 2010).

- **Case study**: It is a detailed investigation of an event, activity, a process or one of two individuals (Williams, 2007). A case study researcher is described as a biographer who concentrates on a segment of the life of a specific individual (Stake, 1995). Yin (2014) whose extensive work on case-study research presents a method which has its own unique research design. The rigor of case study research according to Yin is the skill in which the researcher can arrange collected data into "readability, credibility and conformability" (Yin,2014:192). The conforming of these three parameters create data that is accurate and well representative of a case that is being studied.

- **Ethnography**: It is a study and systematic recording of human culture. An ethnography study is a study that focuses on the common culture of a group of people (Williams, 2007). In order to effectively gain knowledge and insight on a cultural group, long periods of time are spent among the group that is of interest. The disadvantages of this type of research is that it's it is very taxing on the researcher because ethnography deals with narration, results are not easily duplicated and are not significantly developed (Gulten, 2014).
- **Grounded theory**: This theory is a method of creating a systematic theory based on research from abstract and conceptual categories. There is no initial theory that is hypothesized, but as the study proceeds, abstract elements of the data are collated and analysed, and theory is then devised. As new data emerges, the theory is revisited and improved upon in a dynamic method. (Willig.2013). The advantages of this theory is that it creates a significant comprehension of an experience, comprehension of fundamental experiences is vital to related experts and policies and it involves an efficient method of information accumulation (Pinnegar and Daynes,2006).This theory incorporates the union of grouping of elements acquired from reports which are further composed from the procedure of grouping recognition, synthesis and its output (Willig, 2013). The grounded theory method starts with the examination of the field interest from observations of the data which further creates a theory. As the study proceeds, the data collected should be analysed.
- **Phenomenology**: This research method is a research method that is used to describe how human beings experience a certain phenomenon. It is most often used in social science or humanistic research enquiry, which has a socio-anthropological need to understand a phenomenon that affects a group in society. It is further described as the direct investigation and description of a phenomena as consciously experienced by living those experiences. The advantage of phenomenology neither spotlights on simply

the members or the world that they inhabit, it centres around the interrelationship between the two. The disadvantages of phenomenology include the fact that this method can be difficult to grasp, this method is harsh, basic, and regular; an analyst has to acquire a tutor in order to adopt this approach (Speziale, Streubert and Carpenter, 2011).

3.2.2 Quantitative Research

The quantitative research method uses numerical data systematically obtained from a population to generalise findings in a research (Leedy and Ormrod, 2010). This method quantifies data obtained, interpreted and analysed (Maree and Peterson, 2007). The quantitative research method allows the researcher to investigate problems by testing a statement of hypothesis which results in a confirmation or reaction of the hypothesis (Bryman, 2012). Quantitative data is usually made up variables measures in numbers and analysed with statistical formulas (O'Leary, 2010). Four main techniques used in quantitative research are experimental, quasi-experimental, correlational design and descriptive design (Grand Canyon, 2017).

3.2.3 ***Experimental Research Design***

This method is regarded as a true experimentation which utilizes a scientific technique in order to establish cause-impact relationship among a group of variables in a research study (Bryman, 2012). It includes a hypothesis and an attempt is made from researchers to control, calculate, measure, calculate and compare all variables besides the manipulated variables (the independent variable). The both variables, dependant and independent are gathered and analysed to determine the relationship (ibid). The researcher collects data and results will either support or reject the hypothesis. This method of research is referred to a hypothesis testing or a deductive research method. In general, variables are manipulated to establish effect on a dependent variable. Experimental research designs adopt manipulation and control testing for the understanding of casual processes (Leedy and Ormrod, 2010).

3.2.4 ***Quasi – Experimental Design***

This Quasi-Experimental design which is also referred to as the casual comparative is a design that seeks to build cause-effect connection between two or more variables (Leedy and Ormrod, 2010). The identification of control groups are established and thereafter exposed to the variable. The results are compared with results from groups that are not exposed to the variable. Quasi -experimental research design is similar to the experimental research design but lacks the element of random assignment and control (Creswell and Clark, 2007). It allows the researcher

to control the assignment to the treatment condition but using some criterion other than random assignment (Leedy and Ormrod, 2017).

3.2.5 Correlational Design

Correlation research design is a type of non-experimental design which allows the measurement of two or more variables and assesses statistical relationships between them with minimal effort to control extraneous variables (Maree and Peterson, 2007). This design examines the relation between variables using statistical analyses. However, this design does not seek for cause and effect. The data collection process is mainly based on observation (Leedy and Ormrod, 2010). Correlation research design is adopted when a researcher is of the opinion that a causal relationship exists between variables. Researchers also use a correlational study when the casual statistical relationship between the variables cannot be manipulated (Hennink, Hutter and Bailey, 2011)

3.2.6 ***Descriptive Design***

Is a design that describes the present status of a variable or a fact? This study differs from others whereby it does not begin with a hypothesis. The hypothesis is developed after the collection of data which is based mostly on observation (Bryman, 2012). Contrary to experimental research, variables are not controlled or manipulated in descriptive design, rather they are observed and measured (Bryman, 2012). Descriptive research design is usually adopted when the aim of the research involves the identification of characteristics, trends, frequencies and categories (Leedey and Ormrod, 2010).

3.2.7 ***Mixed Method Research Method***

Research can adopt a multi-faceted approach. The mixed research method combines both qualitative and quantitative in one study for better understanding of the research problem (Creswell and Clark, 2007). This approach usually, for example, refers to using both a quantitative research design with a questionnaire as an instrument, as well as a qualitative research design which uses semi-structured face-to-face or telephonic interviews of a longer duration as data as well as a perusal of available documents that aid in the research process. This process ensures that the in in-depth understanding of the phenomenon is recorded, with multiple data sources. Mixed method research enables the research to obtain different types of data and accommodates a variety of data analysis techniques, which allows for data interpretation in a variety of ways (Hennink et al, 2011). Leedy and Ormrod (2010) opined that research problem, research questions, objectives of the study and the skills of the researcher

should influence the decision to utilize the mixed research method. To ensure validity, triangulation is one of the most important tools that a researcher can utilise. (Denzin and Lincoln, 2005). Although quantitative data can collect questionnaire answers and analyse them statistically, the data can be further enhanced to answer the research questions with rigor and accept or reject the hypothesis with more clarity, therefore adding to the richness of the subject being researched.

3.3 Research Strategy

A research strategy presents a comprehensive plan for a research. It guides the researcher on the directions of the research and provides a step-by step plan of action on how the research will be carried out (Johannessen, 2014). Several research strategies can be adopted for qualitative, quantitative and mixed research methods such as grounded theory, content analysis, ethnography, case study, conceptual study, historical research, action research, exploratory studies, experimental studies, quasi-experimental studies and descriptive studies (Nieuwenhuis, 2007). Considering the nature of the data required for this study a descriptive research was adopted for this study.

3.4 Area of the Study

Data for this study was obtained from contractors in the KwaZulu-Natal province of South Africa.

3.5 Population

An objective populace alludes to an entire group of people to which researchers identify in generalizing the conclusions and it generally has different attributes. The population of the study is to be clearly defined for effective research and to enable a representative sample size to be purposeful in order to be generalized (Sekaran and Bougie, 2009). For the purpose of this study, the study population were construction companies in the KwaZulu-Natal province of South Africa and are involved in tendering and contractual aspects of construction contracts.
Of this total population of approximately 5,000 contractors, the accessible population of 682 were contractors on the list of the Master Builders Association in the KwaZulu-Natal province.

3.6 Sampling technique and sample size

Sampling alludes to a procedure of picking a suitable number of elements from the populace to ensure that a study of the sample and the comprehension of its properties or attributes make it conceivable to generalize such properties to the populace elements (Sekaran and Bougie, 2013).

There are essentially four groups of samples; judgemental, random, convenience and purposive sampling. The study sample must be characterised by items that allow a generalisation of findings based on the entire population (O'Leary, 2010).

- **Judgement Sampling**: this type of sampling varies in which the primary units are chosen and is obtained as a result of the watchfulness of an individual familiar with the qualities of the population (Mugo, 2002).
- **Random Sampling:** this method is a strategy of choosing a sample from a statistical populace so that each conceivable sample that could be chosen has a predetermined probability of being chosen. In this method every individual of the subset has an equal choice of being selected to be part of the sampling process.
- **Purposive Sampling:** is a sampling technique adopted by handpicking typical and interesting cases. For the most effective use of limited resources, purposeful sampling is used for the selection of fascinating cases. Individuals or groups of individuals who are experienced or have sufficient knowledge of the subject matter (Cresswell and Plano Clark, 2011).
- **Convenience Sampling:** is a method where the participants that are free and accessible and willing to participate for a period are chosen by analysts. Convenience sampling relies on collecting data from a population that is conveniently available to participate in the study.

This study adopted the convenience sampling method. Leedy and Ormrod (2010) described convenience sampling as a method where the participants that are free and accessible and willing to participate for the period of time chosen the researcher. Contractors involved in tendering and contracts were invited to participate in the study. This method was selected based on the researcher's judgement (Bryman, 2012). Convenience sampling allowed the researcher to select contractors based on their availability to participate in the study. Although, several contractors were involved in tendering and contractual aspects of the construction contracts, somewhere unavailable to participate in the study. Convenient sampling enabled the researcher to select those available until the desired sample size was achieved. For this study the data base of the Master Builders Association KZN is accessed and a population size of 682 contractors is identified.

Sampling size: The Slovin's formula sampling technique is used when it is not possible to study an entire population, a smaller sample is taken using a convenience sampling technique. Slovin's formula allows a researcher to sample the population with a desired degree of accuracy.

The researcher is given an idea of how large his sample size needs to be to ensure a reasonable accuracy of results. Using the convenience sampling technique and by applying the Slovin's formula:

$n = N/(1 + Ne^2)$

Where n = Number of samples

N = Total population

e = Error tolerance level

Therefore, the sample size was calculated as follows:

$n = N/(1 + Ne^2)$

n= 682/ (1 + 682*0,1)

= 87 respondents

The sample size for the study aimed is 87 derived from Slovin's formula. A total of 134 questionnaires were sent out via email, and personally.

3.7 Data Collection Method

For this study, a questionnaire was used to collect data from 134 respondents. The 134 respondents were contractors registered with Master Builders Association KZN. The nature of the investigation to be conducted and the required type of information determines the type of data collection method (Struwig and Stead, 2007). Surveys allows the researcher obtain information from large samples of the target population. Additionally, it allows data on demographics to be collected (De Vos, Strydom, Fouche and Delport 2011).

3.7.1 *Data Collection Technique*

In surveys, questionnaires are usually used to collect data (Kumar, 2011). Questionnaires are typically relied on to conduct investigations and opinions regarding certain situations (Leedy and Ormrod, 2010). This data collection technique involves the gathering of information by asking numerous statements and questions that are related to a particular topic and thereafter the results are generalised to a larger population (Kumar, 2011). In order to achieve an outcome that will reflect on the accuracy of the quality of the information, a well-designed questionnaire which is relevant to the study is required (Bruce,2008). This technique comprises of two types of questions; closed end questions, which requires a short one-word answer and open-ended question which encourages more detail and meaningful answers. This study adopted the use of closed-ended questions. This type of questions normally exists as multiple-choice questions (Leedy and Ormrod, 2010). It only permits a set amount of answers, avoiding the collection of additional data. Closed ended questions are used for more uniformity, consistency, accuracy,

simpler classification and most importantly it is less review for the respondent (Ibid). The advantages of close-ended questions in the form of a questionnaire allows the respondent to answer questions quickly and apart from expediting time factors in a dissertation (Bryman, 2012).Closed – ended questions were adopted to enable respondents select from a category that best suits their response (Bryman, 2012). In this study, questions for the survey were formulated based on the aims and objectives of the research and a review of existing literature.

3.7.2 *Structure of the Questionnaire*

The questionnaire arrangement was structured in sections and aimed at achieving each research objective. The questionnaire contained various close-ended three and five-point Likert scale questions which allowed respondents to choose from a range of answers (Du Plooy, 2009).

3.7.2.1 Close Ended Questions

This type of questions normally exists as multiple-choice questions. It only permits a set amount of answers, avoiding the collection of additional data. Closed ended questions are used for more uniformity, consistency, accuracy, simpler classification and most importantly it is less review for the respondent (Ibid).

The advantages of close-ended questions in the form of a questionnaire allows the respondent to answer questions quickly and apart from expediting time factors in a dissertation, Leedy and Ormrod (2005) outlined the following advantages:

- It is easier and quicker for respondents to answer.
- The answers of different respondents are easier to compare.
- The answers are easier to code and statistically analyse.
- The response choices can clarify question meaning for respondents.
- Respondents are more likely to answer about sensitive topics.
- There are fewer irrelevant or confused answers to questions.
- Less articulate or less literate respondents are not at a disadvantage.
- Replication is easier.

The disadvantages of close ended questions in the form of a questionnaire are as follows:

- They can suggest ideas that the respondent would not otherwise have.
- Respondents can be frustrated because their desired answer is not a choice.
- Respondents with no opinion or no knowledge can answer anyway.
- It is confusing if many response choices are offered.
- Misrepresentation of a question can go unnoticed

- Distinctions between respondents' answers may be blurred.
- Clerical mistakes or marking the wrong response is possible.
- They force respondents to give simplistic responses to complex issues.
- They force people to make choices they would not make in the real world.

All questions were closed ended, easy to read and understand. Respondents were asked to respond to a 5-point Likert scale with 1 = strongly disagree and 5 = strongly agree, and to what extend they agreed with 19 statements on factors that contribute to the lack of understanding of contract documents and the influence that training of the understanding of standard forms of contract . In addition to completing the measure contractors were required to complete the appropriate statements that applied to the different contract documents, length in business, CIDB grading, length of CIDB grading, the standard forms that they worked with and level of difficulty with the different standard forms of contracts.

3.7.2.2 Open Ended Questions

- Responses are not constrained when using open ended question. This type of question allows for the respondent to use their own words to answer questions. It also allows respondents to express their opinions. Open ended questions are more difficult to analyse. However they can provide rich data. (O'Leary, 2004).
- Open ended questions in questionnaires allow for interpretive elasticity. Respondents speak their minds and the question can lead to the subject revealing information that was not asked for at the outset but can add richness to the data once it is analysed. The interviewee can explore ideas and suggest a new way of looking at the research question that can reflect on other deeper meanings. Analysis and interpretation of the data from Open ended questions are easier to elicit as there is no fixed rubric that is placed by the researcher. They are useful for gaining answers that are deeper and require a subjective approach that was not originally thought about when the research question was posited. Their insights into a research problem allows for higher quality of data. Even though they may not be easier to analyse and interpret as, for example multiple choice answers that can be simply analysed by a statistical program, they have the advantage of providing more insightful interpretations. The other disadvantage of using open ended questions is that it is often something that puts a respondent off and they may not want to dig deeper and provide an answer that can be analysed. They can also be interpreted incorrectly due to the subjectivity of the interviewer.
- The instrument does not contain any open-ended questions.

3.8 Response Rate

The questionnaires were emailed directly to contractors in the KwaZulu-Natal province. An appeal was made to contractors to assist in the research. As a follow-up strategy to increase the response rate, after two weeks, repeated reminders were sent every three days to non-respondents via email. Participants who responded early were then asked to assist further by recommending other contractors known to them in order to increase responses. The data was collected over a period of two months. A total of 134 questionnaires were administered and 67 were returned, translating to a response rate of 50%. Baruch and Holtom (2008) opined that there is no agreed standard to what a reasonable or acceptable response rate should be. A response rate of 50% is regarded as acceptable in social research surveys (Richardson, 2005; Nulty, 2008)

3.9 Validity and Reliability

Validity and reliability are ensured in different forms, depending on the nature of the research problem (Struwig and Stead, 2007). For evidence that the use of research instruments fulfils their purpose, they are tested for validity and reliability (Leedy and Ormrod, 2010). Validity and reliability determine the objectivity and credibility of a study (Bryman, 2012).

3.9.1 *Validity*

Validity is the trustworthiness of findings of a study (Struwig and Stead, 2007). Leedy and Ormrod (2010) argued that the ability of an instrument to measure what it is designed to measure shows the extent to which the research is valid. Kumar (2011) further explained that the validity of a research could be determined using triangulation, grounded data or the validation of the study participants. According to Bryman (2012) triangulation is used to ensure confidence of research findings and identify any contradictions in the data. In this study, validity of findings was determined with the use of previous literature. For trustworthiness of the study, the researcher will ensure that the study setting is not influenced by external inferences.

3.9.2 *Reliability*

According to Leedy and Ormrod (2010), reliability is extent of accuracy, stability and consistency of a test score. Reliability is said to be high, when the research instrument is accurate and consistent (Kumar, 2011). Reliability of a study is conducted to minimise errors in that study (Bryman, 2012). According to Struwig and Stead (2007) three major factors must be considered in the measurement of the reliability of a study;

- **Stability:** For confidence in the results, stability of a measure is usually confirmed over a specified period by ensuring that variations do not exist in the measure for a sample of respondents.
- **Internal reliability:** This involves the consistency of the measures that construct the scale. It deals with ensuring that respondent's scores on an indicator is related to their scores or alternative indicators.
- **Inter-observer consistency:** This deals with the likelihood that consistency in decisions are non-existent for subjective judgement in the recording of observations or data conversion into multiple sections in instances where multiple observers are involved.

Girden and Kabacoff (2008) suggested the use of Huder-Richardson formula 20 (KR-20), Cronbach's co-efficient alpha and split half techniques. To test for inner consistency and reliability of the scales used to measure the various constructs in this study, the Cronbach's co-efficient alpha was used. A Cronbach's alpha value between 0.60 and 0.80 indicates a good and acceptable reliability (Maree and Pietersen, 2007). A co-efficient alpha of 0.80 and above is perceived to represent an optimal and sustainable level of reliability (Burns and Grove, 2009).

3.10 Data Analysis

The latest version of IBM SPSS (version 25) was used to derive descriptive statistics. According to Naoum (2007) descriptive statistics is the easiest method of data analysis. The method provides a numerical analysis of data collected from a study (Leedy and Ormrod, 2010). Variables are described using the mean value and percentages (Maree and Pietersen, 2007). In descriptive statistics, there are three main methods used in the description of data characteristics; frequency distribution, measure of central tendency and measure of dispersion (Leedy and Ormrod, 2010).

Descriptive statistics in the form of frequency distribution and measurement of central tendency including medians, means and standard deviations were used to analyse the data for this study. A frequency distribution consists of a distribution of scores on a scale of measurement (Struwig and Stead, 2001). Fox and Bayat (2007) described measure of central tendency as a single value on a scale of measurement which shows a representation of a set of score's location. In this study, the researcher examined the quantitative data and made inferences by editing, classifying similar data and tabulating the data to relate the variables. In this study, descriptive statistics will report the data sample by providing a detailed description of the respondents and revealing the pattern of responses.

3.11 Scale of Measurement

Scales of measurement are used to interpret and categorise variables (Steven, 2017). Each measurement scale influences the type of statistical approach to be adopted for statistical analysis (Blalock, 2017). The four scales of measurement are as follows;

- **Ratio Scale**: Similar to the interval scale, the ratio scale has an origin point of zero absolute. It enables the researcher to conduct all types of inferential statistics. Allowance is given to ascertain the geometrical and percentile variation (Blalock, 2017).
- **Nominal Scale**: This scale of measurement consists of numbers and data and measures single units and categories. Allowance is given to ascertain percentage scores and the mode (Joshi, Khale, Chandel and Pal, 2015).
- **Ordinal Scale**: This measurement scale measures with regards to rank orders an ordinal measurement scale measures in terms of rank orders. Ordinal scale of measurement allows the researcher to calculate the median, percentile and rank correlation (Awang, Afthanorhan and Mamat, 2016).
- **Interval Scale**: This measurement scale represents quantities where the interval between 2 variables is meaningful. Variables are measured in actuals and the zero point depicts an additional measurement point. It is mostly used in inferential statistics and allows the calculation of the mean and standard deviation and enables one to perform most statistical inferential analysis (Wu and Leung, 2017).
- The nominal scale of measurement was used to interpret and categorise variables in this study.

3.12 Chapter Summary

This chapter outlined the research strategy, design as well as the methods utilized including the instruments used for the study. The population and sample size were identified as well as the sampling method. The research instrument was explained, and data collection and analysis techniques were outlined. The next chapter focuses on data analysis.

CHAPTER 4: PRESENTATION OF FINDINGS

4.1 INTRODUCTION

This chapter presents an in-depth analysis of the data that was collected. Discussions cover the profile of respondents, questionnaire response rate and reliability statistics. Furthermore, this section presents the analysis and discussion of results concerning the causes of the lack of understanding of standard forms of contract documents, the complexity and structure of standard forms of contracts and the impact of training.

4.2 STATISTICAL ANALYSIS

4.2.1 Questionnaire response rate

A total of 134 questionnaires were administered to contractors. Questionnaires were collected in person and via email and 67 were duly returned, representing a response rate of 50.5%. Baruch and Holtom (2008) opined that there is no agreed standard to what a reasonable or acceptable response rate should be. Nulty (2008) argued that a 20-30% response rate is typical for a survey. A response rate of 50% is regarded as acceptable in social research surveys (Richardson, 2005; Nulty, 2008)

Richardson (2005) cited Babbie (1973, 165) and Kidder (1981, 150–151) when stating that 50% is regarded as an acceptable response rate in social research postal surveys.

4.2.2 Analysis of profile of respondents

Contractors made up 100% of the respondents from the Durban Area in the KwaZulu-Natal province of South Africa. These respondents are defined as those who work for construction companies and are involved in tendering and contractual aspects of the construction contracts.

4.2.3 Contractors CIDB Registration & Grading

The Construction Industry Development Board (CIDB) is a body that oversees the sustainability and growth of public sector construction enterprises across South Africa. A register has been established by CIDB that categorises contractors in a process that facilitates public sector procurement. It is the sole registration and grading system for contractors in South Africa, and contractors wanting to participate in public sector construction projects are required to be registered with the CIDB. The CIDB register classifies contractors in 9 grades. These grades are based on their financial and work capabilities as shown on Table 4.1. Table 4.2 shows

information on the CIDB grading of the participants of the study. Respondents were required to indicate whether they had CIDB grading's. Table 0.1 indicates that 63 (94%) respondents had CIDB grading's and 4 (6%) respondents did not. A majority of the respondents (91%) had a CIDB grading ranging from grade 1 to grade 6; 25.4% of the respondents were in Grade 1, 36.5% in Grade 2, 23.8% in Grade 3, 7.9% in Grade 4, 1.6 in Grade 5 and 4.8% in Grade 6. It is evident from Table 0.1 that contractors were registered with their current CIDB grade for a maximum of 15 years and a minimum of 1 year.

Table 0.1 Grading System

Designations (Level)	Upper limit of tender Value	Best annual Turnover	Largest single contract	Available Capital
2	R650, 000	-	R130, 000	-
3	R2,000, 000	R1, 000, 000	R450, 000	R100, 000
4	R4, 000, 000	R2, 000, 000	R900, 000	R200, 000
5	R6, 500 000	R3, 250, 000	R1, 500, 000	R650, 000
6	R13, 000, 000	R6, 500, 000	R3, 000, 000	R1, 300, 000
7	R40, 000, 000	R20, 000, 000	R9, 000, 000	R4, 000, 000
8	R130, 000, 000	R65, 000, 000	R30, 000, 000	R13, 000, 000
9	No limit	R200, 000, 000	R90, 000, 000	R40, 000, 000

Source: CIDB (2019)

Table 0.2 CIDB Registration & Grading of Participants

CIDB Grading's and tender range value (N=67)	%
1 – < R200, 000	25.4
2 –< R650, 000	36.5
3 –< R2, 000, 000	23.8
4 – <R4, 000, 000	7.9
5 –< R6, 500, 000	1.6
6 – <R13, 000, 000	4.8
7- <R40, 000, 000	0.0
8- <R 130, 000, 000	0.0
9 – No limit	0.0
Total	100.0%

No of Years Registered CIDB (N=61)	
Median	5.0
Max	15.0
Min	1.0

4.3 Reliability Test

The reliability of scaled questions was tested with the use of Cronbach's alpha co-efficient. Cronbach's Alpha examines the internal consistency of scales used for data, namely how closely related the items are as a group. It is a measure of scale reliability.

The levels of Cronbach's Alpha coefficients are as follows, namely

- a co-efficient of ≤ 0.7 is deemed as low reliability;
- 0.71 to 0.89 is considered moderately reliable; and
- ≥ 0.90 is considered highly reliable (Vosloo, 2014).

The reliability statistics of the scaled responses to questions 1 and 10 are shown in Table 0.3. The reliability test shows that the two scales used to measure the constructs have moderate internal consistency with reliability co-efficient 0.81. This finding suggests that the scales satisfy the minimum threshold of 0.70 for internal consistency.

Table 0.3 Summary of Reliability test

Scale	Cronbach's Alpha	Number of items
Influence of poor contract understanding	0.84	19
Influence of training on contract understanding	0.77	7
Total items	0.81	26

4.4 Analysis of Responses

For ease of interpretation of the means of the responses to statements presented to participants in the study, they were categorized into low, medium and high levels of agreement as shown in Table 0.4 . These categories are used to interpret the findings.

Table 0.4 Interpretation of means

Interval of mean scores	Level of Agreement
≤1.67	Low (L)
≥1.68≤3.33	Medium (M)
≥3.34	High (H)

4.5 Factors that contribute to the lack of understanding of standard forms of contract documents

Participants were presented with 19 statements about the lack of understanding of contract documents and were requested to indicate their level of agreement with these using a 5-point Likert scale of agreement where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree. Their responses ranked by the mean scores are shown in Table 0.5.

Table 0.5 Factors that contribute to lack of understanding of standard forms of contracts

Statement	Mean	Standard Deviation	Rank	Level
Contractors establish common understanding of legal studies and obligations	3.94	1.24	1	H
Contracts try to cover every possible situation	3.79	1.36	2	H
Standard forms of contract have too much detail	3.77	1.40	3	H
Contract documents are always complete	3.64	1.41	4	H
There are too many clauses	3.60	1.38	5	H
Too many revisions create confusion	3.58	1.38	6	H
Contract clauses lack clarity	3.56	1.30	7	H
Contracts are designed to be only understood by experts	3.52	1.40	8	H
Too many modifications to existing issues	3.40	1.34	9	H
Contract document is too long	3.40	1.43	10	H
Use and order of words in sentences is unclear	3.33	1.52	11	M
Too many redundant legal expressions	3.31	1.77	12	M
Difficult to understand / comprehend	3.16	1.45	13	M
Sentences too long	3.04	1.5	14	M
Difficult to read	3.04	1.48	15	M
There seems to be too much repetition	3.01	1.60	16	M
Layout of contract documents is poor and confusing	2.92	1.45	17	M

Allocation of risk is unfair	2.92	1.60	18	M
Clauses are unfamiliar	2.91	1.47	19	M

From Table 4.5 it is evident that of the 19 statements about the lack of understanding of contract documents, the level of agreement with 10 statements was high (means = 3.94 to 3.40) and that of the remaining 9 statements was medium (means = 3.33 to 2.91).

The findings show that respondents mostly agree that contractors established common understanding of legal studies and obligations (mean =3.94). They also agreed strongly that contracts tried to cover every possible situation (mean =3.79) and that standard forms of contract had too much detail (mean =3.77). Further, participants had medium levels of agreement that the layout of contract documents were poor and confusing (mean =2.92), allocation of risks was unfair (mean=2.92 and that clauses were unfamiliar (mean =2.91).

Findings from this study are supported by literature. In a study conducted by Chao-Duivis, Koning and Ubink (2013) it was found that the use of unnecessary legal language led to lack of understanding of traditional form of contracts. The use of redundant legal expressions creates complicated and confusing content in construction contracts ((Dubois and Gadde, 2000). Chan, Chan, Lam and Wong (2010) found that contract documents often contained unnecessary details with ambiguous and unfamiliar clauses. In contrast, van der Berg and Wium (2015) emphasized that for contractual agreements in construction projects to be precisely understood, lengthy contracts were often required. Wright and Fergusson (2009) proposed the improvement of forms of contracts by ensuring that clauses used were familiar. These improvements are expected to result in clarity, flexibility, familiarity and less ambiguity in contractual agreements.

4.6 Contractor perceptions of different standard forms of contract

Respondents were presented with eight statements and required to describe their perceptions of standard forms of contract that they had worked with based on their experience. The findings are shown in Table 0.6 .

Table 0.6 Perceptions of standard forms of contracts

Perception	NEC	FIDIC	JBCC	GCC
Has a less adversarial nature	34.3%	16.4%	29.9%	19.4%
Uses ‘plain simple English” benefiting the user of the contract	29.9%	11.9%	38.8%	17.9%
Contract is designed with clarity and simplicity	25.4%	17.19%	34.3%	20.9%

Tend to be too formal	10.4%	29.9%	44.8%	13.4%
Too much ambiguity	9.0%	23.9%	41.8%	23.9%
Has greater emphasis on the employer providing comprehensive works information, resulting in the contract parties being more proactive in their management of the project	10.4%	19.4%	37.3%	31.3%
Enable more effective contract administration	13.4%	16.4%	40.3%	28.1 %
Too much legalese is used	13.4%	14.1 %	55.2%	14.9%

Apart from the NEC which most respondents (34.3%) indicated to be the least adversarial in nature, the JBCC featured most prominently relative to their perceptions of various aspects of the various contracts. Respondents reported that

- too much legalese was used in the JBCC (55.2%);
- the JBCC tended to be too formal (44.8%);
- too much ambiguity (41.8%);
- enabled more effective contract administration (40.3%);
- used 'plain simple English" benefiting the user of the contract (38.8%);
- has greater emphasis on the employer providing comprehensive works information, resulting in the contract parties being more proactive in their management of the project (37%);
- designed with clarity and simplicity (34%).

These findings are generally in line with the literature as the use of legal jargon – sometimes referred to as legalese hinders the primary users. These primary users are administrators, project managers, quantity surveyors, architects and engineers who do not have a legal background (Wright & Ferguson, 2009). According to Rameezdeen and Rajapakse (2007), the absence of clarity creates different interpretations of clauses and hinders the performance of a project. The resulting effects of ambiguity have furthermore been identified as major the reasons for construction disputes. With regards to the adversarial nature of contracts, Frehse (2013) revealed NEC improved adversarial relations, thereby promoting collaboration and ensuring optimal project performance as opposed to the use of other traditional standard forms of contracts, supporting the findings in this study.

4.7 Establishing the most frequently used standard forms of Contracts

The CIDB recommends the use of four commonly used standard form of contracts in South Africa to promote standardization. Respondents were required to indicate how often they had used these four contract forms.

Table 0.7 Use of standards forms of contracts

Contract forms	Yes (%)	No (%)	Rank
JBCC	100.0	0.0	1
GCC	41.8	5.2	2
NEC	35.8	6.2	3
FIDIC	17.9	82.1	4

From Table 0.7, it is evident that the JBCC was the most frequently used standard form of contract with all (100%) respondents having used it followed by the GCC (41.8%). This finding could be attributed to the fact that these documents are the mainly used standard construction contracts in South Africa as opposed to the FIDIC and NEC which are international standard forms of contracts and therefore less frequently used. Although, NEC was introduced in South Africa about 20 years ago, the adoption is very limited in the construction industry (van der Berg and Wium, 2015). It is mostly used in the United Kingdom, New Zealand, Australia and Hong Kong. CIDB (2014) revealed that NEC is hardly adopted in construction projects and only 2% of civil projects used NEC (Mark, 2013). Conversely, over 80% of civil projects were found to be mainly executed under the GCC and JBCC (ibid). Frehse (2013) argued that contractors preferred to use the GCC and JBCC because of their clarity and legalese.

Similar to the KwaZulu-Natal province, Frehse (2013) found that NEC was rarely used in the Western Cape as majority of construction contractors had little or no knowledge of NEC. Contrary to findings in this study, van der Berg and Wium (2015) opined from their study that contractors were likely to move from the use of GCC to FIDIC. This study however found that JBCC and GCC currently dominate in construction projects in KZN, with FIDIC being the least preferred option for contractors.

4.8 Sections of contracts that present problems and/or misunderstandings

Participants were required to indicate which sections of the various standard form of contracts that they had experienced challenges with using a three-point rating scale where 1=minor problems/misunderstanding; 2=moderate problems/misunderstanding and 3=major problems/misunderstanding interpretation. The findings are shown in Table 4.8.

Table 0.8 Interpretation of problems/misunderstandings scale

Interval	Problems/Misunderstandings
≤1.67	Minor
≥1.68≤2.35	Moderate
<3.00	Major

For ease of interpretation, the means of the responses of participants to the various statements concerning areas of the contracts that they had experienced problems with or misunderstood were categorized into Minor, Moderate and Major Problems and/or misunderstandings. The findings are shown in Table 0.9 .

Table 0.9 Sections of standard forms that cause misunderstandings

	NEC				FIDIC				JBCC				GCC			
Problematic section	Mean	Std. Deviation	Rank	Level	Mean	Std. Deviation	Rank	Level	Mean	Std. Deviation	Rank	Level	Mean	Std. Deviation	Rank	Level
Claims and disputes	1.84	2.01	1	Moderate	1.57	0.75	5	Minor	1.48	0.56	5	Minor	1.44	0.69	8	Minor
Payments	1.70	0.72	2	Moderate	1.21	0.42	9	Minor	1.54	0.70	2	Minor	1.59	0.69	5	Minor
Quality assurance	1.59	0.63	3	Minor	1.64	0.74	4	Minor	1.28	0.60	9	Minor	1.53	0..58	6	Minor
Scope change / variation	1.48	0.64	4	Minor	1.46	0.96	7	Minor	1.43	0.59	7	Minor	2.00	1.97	2	Moderate
Design responsibilities	1.46	0.58	5	Minor	1.71	0.72	2	Moderate	1.5	0.72	3	Minor	1.76	0.76	3	Minor
Risk allocations	1.38	0.63	6	Minor	1.30	0.48	8	Minor	1.5	0.76	4	Minor	1.33	0.62	9	Minor
Insurances/ guarantees/	1.38	0.63	7	Minor	1.50	0.65	6	Minor	1.71	1.67	1	Moderate	1.69	0.68	4	Minor
Latent Defects	1.37	0.68	8	Minor	1.64	0.74	3	Minor	1.44	0.64	6	Minor	2.07	1.89	1	Moderate
Delay and time extensions	1.30	0.54	9	Minor	2.14	2.59	1	Moderate	1.38	0.63	8	Minor	1.5	0.65	7	Minor

From Table 0.9 it is evident that contractors did not have any common problems or misunderstanding when using the various contracts. However, they had experienced more problems/misunderstanding in certain sections than others. The findings indicated that in terms of problems/misunderstanding with using the NEC form, "claims and disputes" (mean=1.85) and "payments" (mean=1.70) gave respondents the most problems and were most poorly understood.

For FIDIC, "delay and time extensions" (mean=2.14) and "design responsibilities" (mean=1.71) gave respondents the most problems and were most poorly understood.
For JBCC, "Insurances / guarantees / gave respondents the most problems and were most poorly understood.

For GCC, "latent defects" (mean=2.08) and "scope change/variation orders" (mean=2.00) gave respondents the most problems and were most poorly understood. These findings are supported by literature. Mbachu and Nkado (2007) revealed that with NEC, contractors had problems with the sections of disputes and payment. Consequently, projects were characterized with aggressive behavior, overspending, disputes, payment delays and constraints in contractual claims (van der Berg and Wium, 2015). With regards to GCC, Klingenberg (2014) claimed that contractors identified scope alterations in favor of employers to be common practice.

4.9 Level of difficulty experienced using the different standard forms of Contracts

Respondents were required to indicate the level of difficulty experienced in using the four standard forms of contracts approved by the CIDB using a 3-point scale where 1= relatively easy, 2= difficult and 3=very difficult.

Table 0.10 Level of difficulty with using standard forms

Level of difficulty	Mean	Standard deviation	Rank
JBCC	1.86	0.76	1
FIDIC	1.80	0.67	2
GCC	1.70	1.11	3
NEC	1.23	0.42	4

With regards to the level of difficulty experienced with various contracts, it is evident from Table 0.10 the JBCC (mean=1.86), FIDIC (mean=1.80) and GCC (mean=1.70) were the most challenging forms of contract to work with. It is likely that the difficulty using the FIDIC form of contract stems from lack of familiarity with it because of it rarely being used in South Africa. On the other hand, the NEC was rated as the relatively easy standard form of contract to use.

This finding is supported by literature which claimed that the NEC contract has been designed by using common and simple language and avoiding legal jargon (Broome & Hayes, 1997). Klingenberg (2014) found JBCC, FIDIC and GCC to be the most difficult contact forms to use and claimed these contract forms were responsible for the contractual deficiencies experienced by contractors. NEC has been identified as an effective tool for the improvement of procurement strategies as a result of its ease of understanding and application (van der Berg and Wium, 2015; Frehse, 2015). Wright and Fergusson (2009) argued that NEC promotes good and effective project management and dispute prevention and was applicable in all areas of the supply chain and procurement. Broome and Hayes (1997); Thompson, Vorster and Groton (2000); Sun and Oza (2006); Wright and Fergusson (2009) concluded that positive reviews and results concerning the use of NEC have been given.

4.10 Perceptions of training in construction standard forms of contracts

Participants were presented with seven statements regarding training in construction standard forms of contracts and were required to indicate their level of agreement using a 5-point Likert scale of agreement where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree. Their responses ranked by the mean scores are shown in Table 0.11.

Table 0.11 Contractors perception of training in standard forms of contract

Perception	Mean	SD	Rank	Level
Training in construction will allow the contractor to understand his obligations	4.37	1.05	1	H
Training in construction contracts will reduce disputes and claims in construction	4.29	1.07	2	H
Training in construction contracts would eliminate problems of misunderstanding the terms of the contract	4.23	1.15	3	H
The client should arrange for training in contracts before signing a contract with a Contractor	4.19	1.11	4	H
The construction project must not be allowed to commence until the client is satisfied that the contractor understands all aspects of the contract	4.04	1.40	5	H

The client should allow an amount to be set aside in the contract for training in contracts	4.01	1.37	6	H
I have received training in interpretation of construction standard forms of contracts	2.68	1.60	7	M

The findings in Table 0.11 show that of the seven statements, participants had the highest level of agreement with the importance of training in standard forms of contract means=4.37 to 4.01). They agreed mostly that training in construction contracts would allow them to understand their obligations (mean=4.37), that training in construction contracts would reduce disputes and claims on construction projects (mean=4.29) and that training in construction contracts would eliminate problems of misunderstanding the terms of the contract (mean=4.23). The findings also indicate that contractors lacked training in interpretation of construction standard forms of contracts (mean=2.68). This finding is of concern suggesting that this lack of training could possibly contribute to the challenges that contractors faced with dealing with the various contracts. Van der Berg and Wium (2015) identified the lack of effective training courses as a major hindrance to the adoption of various standard forms of contracts. In addition, resistance of employers to institute training was found to contribute these challenges (Frehse, 2013). Wright and Fergusson (2009) argued training on construction contracts procedures and practices would provide contractors with sufficient knowledge on terms of the contractual agreement.

4.11 Factor Analysis

Factor analysis with principle components extraction was used for data reduction to examine construct validity. Factor analysis produces an initial factors solution based on a single main factor which must be rotated to simplify the factor structure and to group factors which have greater commonality (Laher, 2010).

Table 0.12 Component matrix for factor analysis

	Contract content	Ambiguity and unfamiliar clauses	Lack of clarity and Comprehension	Comprehensiveness of contracts
Contract document is too long	.859			
There are too many clauses	.791			
Too many modifications to existing issues	.681			

Sentences too long	.443			
Standard forms of contract have too much detail	.404			
Layout of contract documents is poor and confusing	.750			
There seems to be too much repetition	.712			
Too many redundant legal expressions		.471		
Allocation of risk is unfair		.779		
Use and order of words in sentences is unclear		.709		
Too many revisions create confusion		.643		
Clauses are unfamiliar		.715		
Contract clauses lack clarity				
Difficult to understand / comprehend			.759	
Difficult to read			.718	
Contracts are designed to be only understood by experts			.751	
Contractors establish common understanding of legal studies and obligations				.718
Contract documents are always complete				.795
Contracts try to cover every possible situation				.804

Table 0.13 Reliability Statistics

Factor	Cronbach's Alpha	Number of items
Contract content	0.793	8
Ambiguity of unfamiliar clauses	0.753	5
Lack of clarity and comprehension	0.751	3
Comprehensiveness of contracts	0.621	3

Table 0.13 shows that three constructs had moderate internal consistency with their reliability co-efficients > 0.70 which suggests that these three constructs satisfy the minimum threshold

of 0.70 for internal consistency. The fourth construct had a reliability coefficient marginally < 0.70 which is regarded as adequate for internal consistency.

4.11.1 Analysis of Comparison of means of constructs

Exploratory factor analysis (EFA) was executed in order to extract latent variables from the observed variables, resulting in the reduction of the number of variables used for analysis. The maximum likelihood extraction method was applied together with the varimax with Kaiser Normalization rotation method. The comparison of means allows the identification of how variables are correlated and ranked.

Table 0.14 Comparison of means of constructs

Scale	Mean	Standard deviation	Rank	Level
Comprehensiveness of contracts	3.79	1.01	1	H
Contract content	3.32	0.95	2	M
Lack of clarity and comprehension	3.25	1.15	3	M
Ambiguity of unfamiliar clauses	3.20	1.10	4	M

From Table 0.14 it is evident that comprehensiveness of contracts ranked high (mean=3.79) and contract content (mean=3.32), lack of clarity and comprehension (mean=3.25), and ambiguity of unfamiliar clauses (mean-3.20) were ranked moderately. It is evident from the findings that the length of contract documents, number of clauses and pages of standard forms of contract documents contributed to the lack of understanding. The lack of clarity and understanding in traditional contract conditions was mainly attributable to long sentence length, poor layout and the presence of many redundant legal expressions (Rameezdeen and Rodrigo, 2013). The findings further indicated that participants of the study considered comprehensiveness of contracts as the most contributing factor to lack of understanding of standard forms of contracts.

4.11.2 Further Analysis

After factor analysis, the resulting constructs were assessed for reliability and validity. Reliability was assessed with Cronbach's alpha and item-to-total correlations while convergent validity was assessed using composite reliability (CR) and Average Variance Extracted (AVE).

Tables 4.15, 4.16, 4.17 and 4.18 show the factor loading for each of the measured constructs, together with the results for reliability checks (Cronbach alpha and CR values) as well as validity checks (AVE values).

Table 0.15 Construct 1 – Contract content

CONSTRUCTS	**Items**	**Mean**	**Corrected Item to Total**	**Cronbach Alpha**	**CR value**	**AVE value**	**Factor Loadings**
Contract Content (n=7)	1.1	3.45	.610	0.793	0.66	0.85	.859
	1.2	3.62	.604				.791
	1.4	3.39	.610				.681
	1.7	3.04	.544				.443
	1.8	2.90	.451				.404
	1.9	2.98	.421				.750
	1.17	3.77	.433				.712

Table 0.16 Construct 2 – Ambiguity and unfamiliar clauses

Construct	Items	Mean	Corrected Item to Total	Cronbach Alpha	CR Value	AVE Value	Factor Loadings
Ambiguity and Unfamiliar clauses (n=5)	1.10	2.92	.558	0.753	0.66	0.80	.471
	1.11	2.91	.617				.779
	1.12	3.32	.581				.709
	1.13	3.31	396				.643
	1.14	3.58	.472				.715

Table 0.17 Construct 3 – Lack of clarity and comprehension

Construct	Items	Mean	Corrected Item to Total	Cronbach Alpha	CR Value	AVE Value	Factor Loadings
Lack of clarity and comprehension	1.3	3.55	.551	0.751	0.74	0.79	.759
	1.5	3.04	.593				.718
	1.6	3.16	.597				.751

Table 0.18 Construct 4 – Comprehensiveness of contracts

Construct	Items	Mean	Corrected Item to Total	Cronbach Alpha	CR Value	AVE Value	Factor Loadings
Comprehensive-ness of Contracts (n=3)	1.15	3.64	.494	0.621	0.73	0.77	.718
	1.16	3.79	.439				.795
	1.19	3.94	.361				.804

The AVE and CR value for all four constructs were well above the acceptable threshold for convergent validity as presented in Table 4.15, 4.16, 4.17 and 4.18. Therefore, all items converged perfectly on the construct.

4.11.3 Analysis using Spearman's rank order correlation coefficients

Spearman's rank-order correlation (rho/rs) is used to measure the strength and direction of association/relationship between ordinal or continuous variables (OLSPS, 2017). To determine the strength of association between the constructs, individual variables were computed under each construct to determine the composite variables. The bivariate correlation analysis expresses the strength and direction between two ordinal variables (Akonglu, 2018). The correlation values (rho) range from -1 and +1 where a negative correlation expresses a negative relationship between the variables; when one variable (X – independent variable) increases, the other variable (Y - dependent variable) decrease (OLSPS, 2017; Akonglu, 2018). A positive

correlation indicates that there is a positive relationship between the two variables, and when the other variable (X - the independent variable) increases, the other value (Y – dependent variable) increases (ibid). A Spearman correlation of zero indicates that there is no tendency for Y to either increase or decrease when X increases. The strength of association ranges from small to strong correlation. A correlation coefficient of zero indicates that no relationship exists between the variables. When X and Y are perfectly monotonically related, the Spearman correlation coefficient becomes 1.

Table 0.19 Spearman's Rank Order Correlation Coefficients

Constructs		Correlation between constructs			
		Contract content	Ambiguity and unfamiliar clauses	Lack of clarity and comprehension	Comprehensiveness of contracts
Contract content	Correlation Coefficient	1.000	.499**	.364**	.205
	Sig. (2-tailed)	.	.000	.002	.095
Ambiguity and unfamiliar clauses	Correlation Coefficient	.499**	1.000	.292*	.272*
	Sig. (2-tailed)	.000	.	.016	.026
Lack of clarity and comprehension	Correlation Coefficient	.364**	.292*	1.000	.081
	Sig. (2-tailed)	.002	.016	.	.515
Comprehensiveness of contracts	Correlation Coefficient	.205	.272*	.081	1.000
	Sig. (2-tailed)	.095	.026	.515	.

Correlation is significant at the 0.01 level (2-tailed).**

Correlation is significant at the 0.05 level (2-tailed).*

There was a statistically significant positive relationship between the constructs ‘ambiguity and unfamiliar clauses’ and ‘contract content’ ($r_s(65) = .499$, $p < 0.001$). For the association between the constructs ‘lack of clarity and comprehension’ and ‘contract content’, there was a statistically significant positive relationship ($r_s(65) = .364$, $p = 0.002$). The construct ‘lack of clarity and comprehension’ was also significantly positively related ($r_s(65) = .292$, $p = 0.016$) with the construct ‘ambiguity and unfamiliar clauses’. There was a statistically significant positive relationship between the constructs ‘ambiguity and unfamiliar clauses’ and ‘comprehensiveness of contracts’ ($r_s(65) = .272$, $p = 0.026$).

However, the construct ‘comprehensiveness of contracts’ does not have a significant relationship ($p > 0.05$) with the constructs ‘contract content’ and ‘lack of clarity and comprehension’.

The statistical analysis shows that there is correlation between contract content and ambiguity and unfamiliar clauses which may be explained as follows, namely that if contractors are unable to understand the contract content then it could be attributed to ambiguity and unfamiliar clauses. The statistical analysis also shows less significant correlation between ambiguity and unfamiliar clauses with lack of clarity and comprehensiveness of contracts which may be explained as follows, namely that the if the contract is unfamiliar it is not necessarily attributed to lack of clarity and comprehensiveness of contracts.

The findings from this study further indicate that it is likely difficult to use standard forms of contracts due to lack of training, resulting in contractors finding contract clauses unfamiliar and unclear.

4.12 Chapter Summary

The study assessed the understanding of standard forms of contracts in South Africa. Generally, the findings echoed those reported in the literature review with contracts being found to be difficult to understand because they lacked clarity exacerbated by them having too many clauses. It is evident that there are various other factors that impede the understanding of the contract documentation. It is likely that the lack of understanding could be related to contractors not having any prior or proper training in contract document interpretation.

Further, the JBCC which is the most commonly used form of contract in South Africa in both the private and public sectors was found to the most difficult form of contract to use followed by the NEC which is less frequently used.

CHAPTER 5 : SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The study focused on the challenges faced by contractors in understanding standard forms of construction contracts in South Africa. Contractors from the Durban, Kwa-Zulu Natal Province were purposively selected from a convenience sample to examine the challenges that contractors experience with using standard forms of contract given that they were developed to provide uniformity in the construction industry through standardization of contractual terms and conditions.

This chapter discusses the testing of the hypotheses, draws conclusions and presents recommendations for future studies.

5.2 Problem Statement

The problem statement for the study was:

The complex design, structure and language usage of the standard forms of construction contracts most commonly used in South Africa result in the lack of knowledge and understanding by building contractors of their rights, duties and responsibilities with negative impacts on their overall project performance and long- term business sustainability.

5.3 Hypotheses

The study hypotheses to be tested were:

- Contractors in South Africa experience challenges in understanding the standard forms of contracts
- The complex design, structure and language usage of standard forms of contracts make them difficult to understand.
- Contractors do not know and understand their rights, duties and responsibilities in standard forms of contracts
- Training in the use of standard forms of contract will improve overall performance and management of construction projects.

5.4 Objectives

The main objective of this study was to ascertain the challenges faced by contractors in the understanding of standard forms of construction contracts. Other study objectives were:

- To examine the effects of the lack of understanding of standard forms of contracts by contractors;
- To determine if the complex design, structure and language usage of standard forms of contracts make them difficult for the contractor to understand;
- To determine if contractors know and understand their rights, duties and responsibilities; and
- To determine whether training in the use of standard forms of contracts will improve performance and management of projects.

5.5 Hypothesis testing

- **Hypothesis 1**

Contractors in South Africa experience challenges in understanding the standard forms of contracts

According to van der Berg and Wium (2015), conditions of a contract play a major role in the performance of construction projects in terms of time, cost and quality and satisfaction of contractors. For ease of understanding, contracts should be precise and free from ambiguities (Jaffar, Abdul Tharim and Shuib ,2011).

Evidence from the study showed that respondents had experienced challenges with the understanding of standard forms of contract. Participants in the study reported high levels of agreement with the contributing factors to the lack of understanding of standard forms of contracts.

Studies had shown that the lack of clarity and understanding in contract documents had led to misunderstandings between parties and even disputes (Rameezden and Rodrig, 2103). Furthermore, if these disputes were not managed properly, they could cause delays in projects, increase in project costs, undermine team spirit and above all, damage to lasting business relationships which could negatively impact on the long-term sustainability of contractors.

Therefore, the hypothesis that contractors in South Africa experience challenges in understanding the standard forms of contracts cannot be rejected.

- **Hypothesis 2**

The complex design, structure and language usage of standard forms of contracts make them difficult to understand.

The use of ambiguous legal language has been attributed to traditional standard forms of contracts ((Dubois and Gadde,2000). Literature revealed that standard forms of contracts used in construction are plagued with many problems, lack of clarity being the most significant (Broome and Hayes, 1997; Cheung and Pang, 2013). By lack of clarity, reference was made to the layout and design of the contract document as well as the order of words and use within a sentence in the contract (Ibid). Consequently, this complicated language use had resulted in unquestionable content in contractual agreements causing repetitive revisions to fix existing discrepancies. The complexity of a contract impedes the progress of the contract parties, especially the contractor to really understand the contractual needs and obligations (Wright and Fergusson, 2009).

The study confirmed that the complexity, structure and language use of the standard forms of contract make contractual agreements difficult to understand. Contractors perceived the contract forms as complex with too much legalese and ambiguity.
Therefore, the hypothesis that the complex design, structure and language usage of standard forms of contracts make them difficult to understand cannot be rejected.

- **Hypothesis 3**

Contractors do not know and understand their rights, duties and responsibilities in standard forms of contracts

Latham (1994) recommended 13 principles to be considered in a contract for the achievement of an effective construction contract, which includes clarity of duties of contractors. Chan et al (2013) further argued that a contractual agreement should clearly specify the roles, duties and responsibility of the contractor. However, previous studies have revealed that contractors have a hard time identifying and understanding their duties and responsibilities in the standard forms of contracts (van der Berg and Wium, 2015; Mbachu and Nkado, 2007) The non-fulfilment of contractual obligations and responsibilities are attributed to interpretation errors mainly to

contract legalese and clarity (Broome and Hayes, 2007). Mbachu and Nkado (2007) revealed that contractual issues such as poorly defined or understood duties and responsibilities is a major constraint in construction projects in South Africa.

It is apparent from the study that contractors did not understand their duties and responsibilities specified in some of the standard forms of contractors. Findings further revealed the difficulty of contractors to understand and interpret the contents of the contract which might likely have resulted in the misunderstanding of their contractual rights and duties.

Therefore, the hypothesis that contractors do not know and understand their rights, duties and responsibilities in standard forms cannot be rejected.

- **Hypothesis 4**

Training in the use of standard forms of contract will improve overall performance and management of construction projects.

Van der Berg and Wium (2015) identified the main barriers in the use of use of standard form of contracts as lack of knowledge, education and training courses. Frehse (2013) attributed the lack of training to employers' reluctance to institute training courses on standards forms of construction contracts. Watermeyer (2012) revealed that focus on the provision of effective training courses on the use of contract forms could promote and improve performance in construction projects.

Contractors indicated a moderate level of agreement pertaining to their receipt of training in the interpretation of standard forms of construction contracts. The study indicated that training in the use of standard forms of contracts allowed the contractor to improve performance and management of projects. What was very evident from the study is that the attributes associated with training in construction provided contractors with the opportunity to understand their obligations. Contractors indicated a level of agreement with statements presented regarding the relationship between training and improvement in the use of standard forms of construction contractors.

Therefore, the hypothesis that training in the use of standard forms of contract will improve overall performance and management of construction projects cannot be rejected.

5.6 Conclusions/Findings

The key findings in this study indicated that construction contractors:

- Had a lack of understanding on standard forms of contracts;
- The complexity of standard forms of contract made them difficult to understand;
- Contractors were unfamiliar with their rights, duties and their responsibilities in standard forms; and
- The overall performance of construction projects will be enhanced and improved if contractors are trained in the use of standard forms of contract.

The South African construction industry is troubled by problems with its contractual standard forms. The challenges that contractors are faced with remains a critical issue which very often leads to the demise of contractors. One of the key factors that determines the success, or the failure of a contract is a well-designed, well understood standard form of contract. To overcome the barriers experienced and promote the use of standard forms of contracts, the provision of training is required. Findings from the study suggested that a specific and flexible training approach as opposed to a uniform approach should be provided for the different standard forms of contract. Each contract should be handled differently considering the problematic aspects and the areas that are misunderstood.

5.7 Recommendations

The study recommends the following;

- Each standard form of contract must be researched thoroughly, and contractors must be trained on the different forms of contracts.
- Forms of contracts like the NEC which have been found to be effective but rarely adopted should be promoted;
- Current training programs provided should be investigated for their effectiveness and the likelihood of improvement;
- For further studies and research on standard forms on contracts in South Africa the following recommendations are made;

This research focused on the construction industry and was limited to contractors in the KwaZulu-Natal province in South Africa. The researcher recommends that the study be extended to other industries and contractors in other provinces. The possibility of obtaining accurate and thorough findings on the use of standard forms of contracts in South Africa will be increased, and comparative studies can be conducted.

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APPENDIX A

QUESTIONNAIRE

This survey is designed to establish the reasons why contractors have difficulty understanding and working with construction contracts most commonly used in construction

Participation is both voluntary and anonymous

1. Please indicate your level of agreement with each of the following statements about standard forms of construction contracts with 1 = strongly disagree and 5 = strongly agree:

No	Factor/Influence	1	2	3	4	5
1	Contract document is too long					
2	There are too many clauses					
3	Contract clauses lack clarity					
4	Too many modifications to existing clauses					
5	Difficult to read					
6	Difficult to understand/comprehend					
7	Sentences are too long					
8	The layout of the contract documents is poor and confusing					
9	There seems to be too much repetition					
10	The allocation of risks is unfair					
11	The clauses are unfamiliar					
12	The use and order of words in sentences is unclear					
13	Too many redundant legal expressions					
14	Too many revisions create confusion					
15	Contract documents are always complete					
16	Contracts try to cover every possible situation					
17	Standard forms of contract have too much detail					
18	Contracts are designed to be only understood by experts					
19	Contracts establish common understanding of legal duties and obligations					

2. To which standard form of contract does the following statement apply most to.

No	Statement	NEC	FIDIC	JBCC	GCC
1	Has a less adversarial nature				
2	Uses" plain simple English" benefitting the users of the contract				
3	Contract is designed with clarity and simplicity				
4	Tend to be too formal				

5	Too much ambiguity				
6	Has greater emphasis on the employer providing comprehensive works information, resulting in the contract parties being more proactive in their management of the project				
7	Enable more effective contract administration				
8	Too much legalese is used				

3. How long have you been in business?

   _____

4. Do you have a CIDB grading?

Yes	
No	

If YES, what CIDB grade are you?

_____

5. If YES, how long have you had that CIDB grade?

   _____

6. Which of the following standard forms of contract have you worked with?

Contract	**Yes**	**No**
JBCC		
NEC		
GCC		
FIDIC		
MBA		
Other (*specify*)		

7. Please indicate which sections of the various standard form of contracts used have created problems/misunderstanding using the rating scale of 1=minor

problems/misunderstanding; 2=moderate problems/misunderstanding and 3=major problems/misunderstanding

No	Clause	**NEC**	**FIDIC**	**JBCC**	**GCC**
1	Payments				
2	Latent Defects				
3	Scope change/variation orders				
4	Quality assurance				
5	Insurances/Guarantees/Performance securities				
6	Design responsibilities				
7	Claims and disputes				
8	Risk Allocations				
9	Delay and time extensions				

8. Please indicate the level of difficulty experienced when using the following standard form of contracts using the rating scale of 1=relatively easy 2= difficult and 3=extremely difficult.

No	Statement	**NEC**	**FIDIC**	**JBCC**	**GCC**
1	Level of difficulty				

9. . Please indicate your level of agreement with each of the following statements about training in construction contracts with 1 = strongly disagree and 5 = strongly agree:

No	**Factor/Influence**	**1**	**2**	**3**	**4**	**5**
1	I have received training in interpretation of construction standard forms of contracts					
2	Training in construction contracts would eliminate problems of misunderstanding the terms of the contracts.					
3	Training in construction contracts will reduce disputes and claims in construction.					

4	Training in construction will allow the contractor to understand his obligations.					
5	The client should arrange for training in contracts before signing a contract with a SMME					
6	The client should allow an amount to be set aside in the contract for training in contracts					
7	The construction project must not be allowed to commence until the client is satisfied that the SMME understands all aspects of the contract					

APPENDIX B

UKZN HUMANITIES AND SOCIAL SCIENCES RESEARCH ETHICS COMMITTEE (HSSREC)

APPLICATION FOR ETHICS APPROVAL

For research with human participants

Information Sheet and Consent to Participate in Research

Date: 18 January 2019

Greeting: Dear Colleague

My name is Ronelle Dulu (Ms), a Msc Construction Management candidate from the Construction Studies discipline in the school of Engineering, College of Agriculture, Engineering and Science, UKZN, dulur@mut.ac.za, 079 526 0071.

You are being invited to consider participating in a study that involves research on Assessing the understanding of contractors of standard forms of contract in South African construction industry. The aim and purpose of this research is to examine the effects of the lack of understanding of standard forms of contracts by contractors in the construction industry of Kwa Zulu Natal. There is a need to assess the lack of understanding of standard forms of contracts by contractors in South Africa in order to enhance project performance and long term sustainability of contractors. The study is expected to enroll +/- 100 participants working in the construction field. These will include contractors. Essentially any contractor involved in the construction industry within the Kwa Zulu Natal region. It will involve the following procedures; the samples of stakeholders will be sourced from the database of Master Builders Association (MBA) and known contractors. The use of emailing respondents will be adopted, via attached surveys. The duration of your participation if you choose to participate will be no more than 20 minutes. The study is funded by my employer, Mangosuthu University of Technology.

We hope that the study will create the following benefits, by providing data that can be used by various stakeholders in the construction industry in order to enhance project performance and long-term sustainability of contractors

This study has been ethically reviewed and approved by the UKZN Humanities and Social Sciences Research Ethics Committee (approval number_____).

In the event of any problems or concerns/questions you may contact the researcher at (dulur@mut.ac.za) or the UKZN Humanities & Social Sciences Research Ethics Committee, contact details as follows:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604557- Fax: 27 31 2604609

Email: HSSREC@ukzn.ac.za

This survey is designed to determine the effects of the lack of understanding of standard voluntary and anonymous, as well as no cost to you and may be withdrawn at any point, further, there will be no penalty or loss incurred.

CONSENT

I _____ (Name) have been informed about the study entitled: "Assessing the understanding of contractors of standard forms of contract in South African construction industry" by Ms R.Dulu.

I understand the purpose and procedures of the study.

I have been given an opportunity to answer questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any of the benefits that I usually am entitled to.

I have been informed about any available compensation or medical treatment if injury occurs to me as a result of study-related procedures.

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at:dulur@mut.ac.za.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers then I may contact:

HUMANITIES & SOCIAL SCIENCES RESEARCH ETHICS ADMINISTRATION

Research Office, Westville Campus

Govan Mbeki Building

Private Bag X 54001

Durban

4000

KwaZulu-Natal, SOUTH AFRICA

Tel: 27 31 2604557 - Fax: 27 31 2604609

Email: HSSREC@ukzn.ac.za

_____ _____

Signature of Participant Date

_____ _____

Signature of Witness Date

(Where applicable)

_____ _____

Signature of Translator Date(Where applicable)

APPENDIX C

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

15 July 2019

Ms Ronelle Dulu (216075684)
School of Engineering
Howard College Campus

Dear Ms Dulu,

Protocol reference number: HSS/0169/019M
Project title: Assessing the understanding of contractors of standard forms of contract in South African construction industry

Approval Notification – Expedited Application

In response to your application received on 05 March 2019, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol has been granted **FULL APPROVAL**.

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 year from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully

.....
Dr Rosemary Sibanda (Chair)

/ms

Cc Supervisor: Professor Theo C Haupt
cc Academic Leader Research: Professor Akshay Kumar Saha
cc School Administrator: Ms N Dlamini

Humanities & Social Sciences Research Ethics Committee
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